

The University of Chicago

BUSINESS-CYCLE THEORY IN THE
UNITED STATES, 1860-1900

A PART OF A DISSERTATION SUBMITTED TO
THE FACULTY OF THE SCHOOL OF BUSINESS
IN CANDIDACY FOR THE DEGREE OF DOCTOR
OF PHILOSOPHY

1940

By
PAUL BARNETT

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PREFACE

BUSINESS-CYCLE theory in the United States before 1860 and after 1900 has been carefully analyzed, but little is known of its development in the period from 1860 to 1900. This essay aims to fill in this gap by a detailed examination of the theories of booms, crises, depressions, and business cycles stated by writers in the United States in this forty-year period. The purpose is simply to present the more important theories found in the literature of the period.

These separate theories are examined in some detail not because of any belief that some particular theory or even all the theories as a whole are likely at this stage of knowledge to add much, if anything, to the present body of business-cycle theory or because of any intent to direct attention to the neglected work of some really important writer. The reasons for such detailed presentation are, first, to show that the cycle problem was not neglected but that there were a number of rather careful and significant attempts to explain cyclical changes in business activity, and, second, to enable students who lack the time to examine hundreds of obscure and fragmentary references to speak more definitely about the development of business-cycle theory in the United States before 1900.

It should be pointed out that because of the above-stated purposes of the study and because most of the material is probably unfamiliar to most readers the author has considered it more important to state as clearly and precisely as possible the theories of the individual writers than to write a critical review of the theories. The point is that exposition receives first place and criticism second.

The writer is under heavy obligation to Professor Garfield V. Cox, whose teaching first suggested the subject and provided the background for this essay and whose friendly encouragement and able criticism have been invaluable in its preparation. The writer is also indebted for suggestions and criticism to Professors Lloyd

W. Mints, S. H. Nerlove, Neil H. Jacoby, C. P. White, and Louis W. Lohr. Grateful appreciation is also due Dean W. H. Spencer and the University of Chicago for a generous grant of fellowships which made this study possible. To all these the author wishes to express his sincere thanks.

The author wishes to thank, also, the several authors and publishing firms, too numerous to list, for permission to use material from their publications.

Great as is his debt to others, full responsibility for the material in the study rests with the author.

PAUL BARNETT

UNIVERSITY OF TENNESSEE

April, 1941

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	I
II. PSYCHOLOGICAL THEORIES OF CRISES AND BUSINESS CYCLES .	10
III. SAVING AND INVESTMENT THEORIES OF THE BUSINESS CYCLE .	25
IV. CYCLE THEORIES BASED ON TECHNICAL PROGRESS AND CAPITAL CONSTRUCTION	56
V. ERROR THEORIES IN TERMS OF THE MECHANISM OF PRODUCTION AND EXCHANGE	70
VI. MONETARY THEORIES OF THE BUSINESS CYCLE	85
VII. CONCLUSIONS	117
BIBLIOGRAPHY	125

CHAPTER I

INTRODUCTION

THE SCOPE AND PURPOSE OF THIS ESSAY

THEORETICAL explanations of cyclical changes in business activity formulated from the close of the English bullionist and banking controversies around, roughly, 1850 to the last decade of the nineteenth century have received but brief treatment by historians of business-cycle theory. The contributions of the Lauderdale-Malthus-Sismondi versus Say-Ricardo-James and J. S. Mill controversy to the explanation of business cycles during the first half of the century have received considerable attention, for this controversy is the point of departure in a number of studies of business-cycle theories. Brief attention has also been given to the explanations of prosperity and depression found in the works of a number of other writers in the money and banking controversies in England up to, roughly, 1850. But, except for brief consideration of the works of an occasional writer here and there, little attention has been given to the theories of business fluctuation stated by economists from 1860 to around 1890. This is particularly true of the theories of cyclical changes in business activity put forward by economists in the United States.

Business-cycle theory in the United States before 1860 and after 1900, however, has been carefully analyzed in several studies. As a part of his work, *Banking Theories in the United States before 1860*, Dr. H. E. Miller carefully traced the development of American business-cycle theory up to 1860.¹ The several studies of business-cycle theories by Mitchell, Hansen, Adams, Persons, Hardy, Macfie, Haberler, and others are devoted almost entirely to the works of writers since 1900.² Thus, despite the evidence

¹ Cambridge: Harvard University Press, 1927.

² Wesley C. Mitchell, *Business Cycles* (Berkeley: University of California Press, 1913), and *Business Cycles: The Problem and Its Setting* (New York: National Bureau

presented by Miller of several rather acute theoretical analyses of cyclical fluctuations even before 1860, later writers of historical and critical works on business-cycle theories have given practically no consideration to cycle theories in the United States before 1900.

Likewise the four principal works on business cycles and business-cycle theories which appeared around 1900 devoted but brief space to works of American business-cycle theorists.³ In his work Jones mentioned only five American writers.⁴ In his study in 1902 Burton listed significant bibliographical material and discussed briefly eight American writers on some aspect of the cycle problem; but, because it was not the primary purpose of his study, he did not present any careful analysis of their cycle theories.⁵ Lescure, in his long section on business-cycle theories, discussed only Henry George, although he referred to the work of E. D. Jones.⁶ In the most extensive work on business-cycle theories published before 1900 von Bergmann, in 1895, devoted but seventeen scat-

of Economic Research, Inc., 1928); A. H. Hansen, *Business-Cycle Theory: Its Development and Present Status* (Boston: Ginn & Co., 1927); Arthur B. Adams, *Economics of Business Cycles* (New York: McGraw-Hill Book Co., 1925); W. M. Persons, "Theories of Business Fluctuations," *Quarterly Journal of Economics*, XLI (November, 1926), 94-128; Charles O. Hardy, *Readings in Risk and Risk-bearing* (Chicago: University of Chicago Press, 1924), pp. 26-42; F. A. Hayek, *Monetary Theory and the Trade Cycle* (New York: Harcourt, Brace & Co., Inc., 1933); A. L. Macfie, *Theories of the Trade Cycle* (London: Macmillan & Co., Ltd., 1934); Gottfried von Haberler, *Prosperity and Depression: A Theoretical Analysis of Cyclical Movements* (Geneva: League of Nations, 1937).

³ E. D. Jones, *Economic Crises* (New York: Macmillan Co., 1900); Theodore E. Burton, *Financial Crises and Periods of Industrial and Commercial Depression* (New York: D. Appleton & Co., 1902); Jean Lescure, *Des crises générales et périodiques de surproduction* (2d ed. rev.; Paris: L. Larose et L. Temin, 1910); Eugen von Bergmann, *Die Wirtschaftskrisen: Geschichte der nationalökonomischen Krisentheorien* (Stuttgart: Verlag von W. Kohlhammer, 1895).

⁴ Jones (*op. cit.*) mentions the following American writers in the period 1860-1900: Horace White, C. F. Adams, Richard T. Ely, Francis A. Walker, and F. W. Taussig.

⁵ Burton (*op. cit.*) refers to or quotes the following American authors: Charles A. Conant, Henry C. Carey, DeCounsey W. Thoms, Horace White, J. B. Howe, David A. Wells, Carrol D. Wright, and W. G. Sumner.

⁶ Lescure, *op. cit.*, pp. 451, 464-67.

tered pages to the works of American theorists, seven of which were on the work of Henry George and five others were concerned with the works of Henry C. Carey and Francis Bowen, who belong properly to the period before 1860.⁷

This neglect of the theories advanced by American economists from 1860 to 1900 to explain cyclical changes in business activity leaves a large gap in the development of thought on business cycles and has led in some cases to the implicit assumption that the problem received no serious and capable consideration during this period in the United States. The prolific formulation of business-cycle theories in the fifteen to twenty years following 1900 suggests that there probably was a considerable accumulation of fact and theory about the business cycle upon which these later writers were able to build.⁸ This essay is an attempt to fill in this historical gap by presenting with brief critical comments such scattered and fragmentary theoretical explanations of booms, crises, depressions, and business cycles as are found in the rather large volume of writing on economic subjects in the United States from 1860 to 1900. The study aims to give a detailed account of the development during the period and the status of business-cycle theory in the United States at the end of the period.

It should be pointed out that this essay is limited to an examination of theoretical explanations of business cycles. It does not deal with historical analysis or factual description of cyclical fluctuations in the United States. It is not concerned with discussion of the specific factors responsible for particular crises, except in so far as knowledge of what actually happened is essential to a critical evaluation of the theoretical explanations formulated by American writers. Although it is difficult to separate very clearly the development of business-cycle theory in a given period from previous theory and to isolate contemporary theory in a given country

⁷ Von Bergmann, *op. cit.*, pp. 58-60 (Hawley); pp. 133-36 (Carey, Peshine Smith, Elder, Crocker); pp. 185-86 (Atkinson); pp. 217-18 (Bowen); pp. 223-25 (F. A. Walker); pp. 353-59 (Henry George).

⁸ In 1927 Alvin Hansen suggested that the more important principles necessary for the formulation of a theory of cyclical changes in business activity had been stated by 1913 (*op. cit.*, p. 190).

from theory in other countries, the time and area limitations stated above are adhered to rather strictly except when necessary to appraise the contributions of American writers.

Aside from the fact that it represented a comparatively unstudied period conveniently bounded at both ends by studies of business-cycle theories, the period 1860-1900 in the United States was selected for intensive study because of the following facts:

1. After 1860 American economics began to develop somewhat independently of English thought and to show some variety and originality.
2. In the three decades after 1870 there was something of an intellectual awakening in economics in the United States marked by the work of American economists trained abroad whom J. M. Clark has called the "Pilgrim Fathers," the founding of the economic and statistical associations, the beginning of the several economic journals, and an increasing number of competent economists concerned with a wide variety of subject matter.⁹
3. It was a period of considerable controversy over a number of economic questions.
4. The problem of cyclical fluctuations should have been an important one, since the United States experienced violent cyclical changes characterized by rather long and severe depressions.

Thus it would seem improbable that the increasing number of capable American economists would be so impervious to the dramatic panics and long depressions as to fail to give serious attention to some theoretical explanations of prosperity and depression.

EXTENT OF COVERAGE

In a work of this kind it is perhaps too much to hope for complete coverage. However, in the course of the research upon which this essay is based, an effort was made to examine every work of every writer in the United States from 1860 to 1900 who could have had anything to say about business-cycle theory, irrespective of its quality.¹⁰ Owing to the length of the period and the frag-

⁹ J. M. Clark, "Past Accomplishments and Present Prospects of American Economics," *American Economic Review*, XXVI (March, 1936), pp. 1-7.

¹⁰ In the preparation of this study the author examined carefully all the available economic writings in the John Crerar, the Newberry, and the University of Chicago libraries in Chicago and by loan any missing references in the following broad sources: (1) all issues of the American academic journals in economics, eco-

mentary nature of the material it is probable that the work of some writer, perhaps a significant one, may have been overlooked. If, however, such omissions have occurred, they must be laid to the inability of the author to discover any reference either to the writer or to his work.

The volume of writing on some one or more phases of the subject, much of which may be charitably termed "popular," contained theoretical explanations of cyclical fluctuations, gluts, revulsions, panics, etc., which varied all the way from superficial ones which even a generous interpretation must designate as completely erroneous and worthless to others which on some points evidenced as much theoretical insight into certain aspects of the cycle problem and stated these points as succinctly and concisely as any modern analysis. Not all these different theories can be considered in this short essay. Space limitations preclude detailed examination of minute variations of popular theories, and good taste and academic propriety demand some justification for the resurrection of cycle theories which, in the light of current theoretical standards at least, appear definitely fallacious. Considerable judgment is thus obviously necessary in the selection of the theoretical explanations to be presented here.

It is the viewpoint throughout this essay that the cycle problem is a divisible one and that any writer who through observation and analysis recognized and isolated some one important factor in the cycle, more accurately described its behavior, and thus refined the cycle problem to be explained or who suggested a more fruitful method of attack or offered suggestive or more plausible theorizing about any of the divisible parts of the whole cycle problem made a sufficient contribution to warrant consideration. In this early developmental period of business-cycle theory it does not appear necessary for consideration that a given writer

conomic history, political science, and statistics; (2) the quasi-popular journals and magazines in economics, finance, and business; (3) official government documents, annual reports, and special reports of investigating committees on subjects related to business cycles; (4) the proceedings of the various economic and monetary conferences; and (5) all books, monographs, articles, and pamphlets mentioned in (a) any of the above sources, (b) the several bibliographies on various economic subjects for the period, and (c) indexes and guides to the current literature.

develop a theory of all phases or all parts of the cycle. Hence, the works of a given writer are considered in this essay even though his analysis was limited to one or more significant factors in the panic, crisis, or depression phase of the cycle and omitted other significant factors and other phases of the cycle. Since complete coverage is not possible in a work of this length, chief consideration is here given to those theories of business cycles, panics, crises, and depressions which occupied considerable space in the literature of the period or which, in the author's opinion, appear to have been in the direction of a more complete theoretical explanation of cyclical fluctuations in business activity.

In deciding whether or not a particular theory conforms to one or more of the above criteria one faces the exceedingly difficult problem of correct and balanced interpretation of what a given writer actually said about business cycles. The tricky terminological difficulties and the implied but seldom stated assumptions in the various writings plus the fact that frequently an adumbrated cycle theory appeared as an incidental part of the discussion of some distantly related problem without any later amplification necessitates considerable care in analysis and suggests caution in interpretation. Too, looking back from this vantage point, there is the very real danger of overinterpretation, i.e., of reading into a particular theory things its author never saw. In some cases it is extremely difficult to know whether a given writer really realized the significance of what he said or whether what now appears to be a theoretical advance was not perhaps an accidentally correct conclusion reached by illogical processes. As a means of deciding whether the full implications of significant brief statements should be credited in full to their authors, two criteria have been applied. First, was what the writer said or suggested necessary to and consistent with his main body of theory? Second, did the author specifically develop the theory and indicate its real significance? Of the writers in the United States from 1860 to 1900 whose works were examined in the course of this study there are several whose attack upon some aspect of the cycle problem, on the basis of the above criteria, merit consideration by serious students of business-cycle theory.

CLASSIFICATION OF CYCLE THEORIES

As a group, these writers formulated several partial and divergent cycle theories. Hence, despite formidable difficulties and possible errors arising from the classification of cycle theories which in most instances are, implicitly if not explicitly, pluralistic rather than monistic, orderly presentation requires some classification and plan of organization of the material. Because too rigid adherence to any classification is apt to provide logical, coherent presentation at the expense of correctness, the writer has attempted to maintain a reasonable degree of flexibility in the classification and has not hesitated to deviate from the general outline in the interest of clarity and completeness.

Since the pluralistic theories include many of the same causal forces but give different emphasis to them, the classification of theories and the allocation of individual writers in this essay is based on the degree of emphasis by the given writer on the primary causal factors. It should be noted, however, that the classification in this essay is based on and is considered appropriate for the particular cycle theories included in this study and is not intended to be a classification of business-cycle theories in general. The theoretical explanations of panics, crises, depressions, and business cycles found in the literature in the United States from 1860 to 1900 are here classified, for purposes of exposition, into the following broad groups:

- I. Psychological theories
- II. Saving and investment theories
- III. Theories based on technical progress and miscalculation of capital requirements
- IV. Error theories dependent upon the mechanism of production and exchange
- V. Monetary theories¹¹

¹¹ There appeared in the American literature fragments of another group of theories, namely, the "weather and crop theories of the business cycle." Variation in the size of agricultural crops was considered an important factor in cyclical fluctuations in business activity by several writers in the United States from 1860 to 1900, but the weather-crop theory of cycles—the most famous version of which was suggested by Jevons in 1875—found few adherents in the United States. In 1875 Benner, an Ohio farmer, partially accepted the theory but offered no theoretical or factual proof of it; and in 1901 Clayton attempted to establish agreement be-

ORDER OF DISCUSSION

The discussion of the business-cycle theories formulated by writers in the United States from 1860 to 1900 follows this broad outline. Within each of these broad classes of theories, however, the discussion is generally organized by authors rather than by similar theories. Individual writers here are placed in one of the foregoing broad groups of theories on the basis of the causal forces which they considered primarily responsible for crises, depressions, or business cycles. Then, with a few exceptions, the whole of the cycle theory presented by a given writer is considered together.

There appears little reason for organizing the discussion primarily on a chronological basis. The incomplete and partial analysis of different aspects of the cycle problem by successive writers plus the notable failure of subsequent writers to attack and build directly upon previous theory means that American cycle theory from 1860 to 1900 developed through the period in different directions rather than consistently in a given direction. Chronological

tween major panics and periods of deficient rainfall in the United States by a study of annual rainfall in the Ohio and Mississippi valleys and the level of Lake Michigan. His work was not convincing because of the rather loose agreement between rainfall and crisis and because of the omission of all minor and some major panics. The weather-crop theory, generally rejected by American writers, was specifically attacked by David A. Wells and Arthur T. Hadley. In view of the importance of agriculture in the national economy from 1860 to 1900 a number of writers argued that variations in the size of agricultural crops affected the direction and level of business activity. Different writers suggested that large crops produced a rise in general business activity for one or more of the following reasons. (1) Additional labor is employed to handle the larger crop. (2) Larger crops make for larger purchases by farmers, particularly capital equipment, partly because of (*a*) the need created by the large crop, (*b*) larger income from the crop, and (*c*) the optimism created by the size of the crop. (3) Larger crops increase farm incomes and thus the demand for the products purchased by farmers. (4) Large crops reduce the price of agricultural products to urban consumers and, upon the assumption of less than unitary elasticity of demand for all agricultural products combined, leave urban consumers a larger amount of their income to spend for other things and thus increase the demand for other commodities.

Further discussion of these theories is omitted from this essay because of lack of space and because they contained, as far as the author has been able to discover, nothing new.

order of discussion is, therefore, of no major importance; hence, except for the writers within a major group of theories and the successive works of a given writer, the material is not treated on a chronological basis.

The principal alternative, then, to the plan used here would have been the organization of the material within the major groups on the basis of similar theories, which would have placed together variants of a given theory as stated by all the writers who considered it. Such a plan would have given a more complete composite picture of what all the theorists from 1860 to 1900 thought about the business cycle. It appears to the author, however, less important to know the composite thought of all the theorists up to 1900 than it is to know the extent to which individual writers sensed the problem and formulated more complete cycle theories as we move from 1860 to 1900. Organization of the particular material in this essay according to theorists rather than by theories appears, therefore, to have two advantages. First, it shows more clearly the extent to which individuals understood and did or did not formulate significant theory about the cycle problem as a whole, and, second, it differentiates more accurately the theories with respect to the time of their formulation.

CHAPTER II

PSYCHOLOGICAL THEORIES OF CRISES AND BUSINESS CYCLES

CLASSES OF PSYCHOLOGICAL CYCLE THEORIES

IN ANY free-enterprise economy all economic activity, including the direction as well as the level of business activity, is, of course, dependent upon individual human decisions; hence, the psychological attitude of the economic decision-making group is a significant and inseparable component of the subjective evaluation of the objective data entering into these final economic judgments. But it is obviously a terminological perversion to extend the psychological theory of cycles to cover all changes in the level and direction of economic activity, irrespective of the given set of objective factors which, in the final analysis, probably constitute the decision determinants. In this essay psychological theories of cyclical fluctuations are defined roughly as (1) those theories in which alternate waves of prosperity and depression are attributed to more or less self-generating cycles in mental attitudes toward the future and (2) those theories which, while accepting directional changes in psychological attitudes as a function of objective phenomena, nevertheless hold that it is the psychological forces which amplify and cumulate changes in economic activity so as to produce wide cyclical oscillations which would not exist on the basis of perfectly rational mass economic behavior.

Two types of analyses of cyclical fluctuations in terms of psychological factors appeared in American literature from 1860 to 1900. The first group of psychological theories in general accepted the view that the collapse and revival of business confidence was the immediate and principal cause of changes in business activity. In this group of theories attention was given almost entirely to panics, crises, and depressions. The second group of theories explained cyclical changes in business activity largely in terms of recurrent shifts in mental attitudes. The most interesting and

complete statement of this type of theory was put forward by Edward D. Jones, in which he attributed the upward movement of the cycle to optimistic bias and implied pessimistic error in the downward movement—an explanation in many respects similar to the analysis later developed by Pigou.

MINOR EXPLANATIONS

LOSS OF CONFIDENCE AS CAUSE OF CRISES AND DEPRESSIONS

The first group contributed little to the theory of business cycles. Observing the mass loss of confidence in major crises and the revival of confidence in periods of recovery and prosperity, several minor writers seized upon psychological changes as the principal immediate causal factor in such movements.¹ Yet this loss of confidence was almost invariably considered a function of one or more specific objective factors. For example, various writers attributed the loss of confidence to real or threatened changes in the tariff,² to changes in the monetary system, particularly greenback and silver legislation,³ to suspicion of the soundness of the banking system,⁴ or to changes of political administration and policies. It should be palpable to any critical observer that, if any single factor or conjuncture of objective external factors, such as the above, is the determinant of rapid shifts in psychological attitudes at any given stage of the cycle, the corresponding directional changes in the level of business activity are chargeable in reality to the real objective factors rather than to

¹ To cite only a few: Charles Moran, *Money* (New York: D. Appleton & Co., 1863), *Money, Currencies and Banking* (New York: S. W. Green, Printer, 1875); "Panics and Politics," *Nation*, XXXIX (July–December, 1884), 325; Sidney Sherwood, *The History and Theory of Money* (Philadelphia, 1893), p. 333; J. W. Jenks, "The Cause of the Fall in Prices since 1872," *Journal of Social Science*, No. 35 (1897), 31–49; Henry Wood, *The Political Economy of Humanism* (Boston: Lee & Shephard, Publishers, 1901), p. 203; William Ernsts, "The Banking Situation and Panics," *Bankers Magazine* (New York), LII (January–June, 1896), 571.

² Henry Carey Baird, *Mr. David A. Wells on Over-Production and Foreign Trade* (Philadelphia, 1884), p. 6.

³ Francis Bowen, "Minority Report of Mr. Bowen," *Report of Monetary Commission 1876*, Senate doc. No. 703 (44th Cong., 2d sess.), pp. 155–56.

⁴ E. V. Grabil, "The Periodicity of Commercial Crises as Exemplified in the United States," *American Magazine of Civics*, VII (1896), 366–67.

the psychological attitudes which the objective factors induce. As Fetter argued later, to ascribe crises to lack of confidence is little help; it is necessary to discover the reasons for the breakdown of confidence.⁵ Specifically attacking the position of the foregoing group, one writer clearly sensed that the "real mischief is not lack of confidence, but the lack of any legitimate grounds for confidence. . . ."⁶

THE OPTIMISTIC ERROR THEORY OF CYCLES FORMULATED BY JONES

INTRODUCTION

It was Jones in 1900 who made the most careful and detailed attempt in the United States to show the interrelationship and causal connections between the subjective motivating forces of individual and mass psychological attitudes, the crucial elements of the economic mechanism, and cyclical fluctuations in business activity.⁷ Jones was primarily concerned not with the formulation of a "competing theory to add to the already long list" but with synthesizing cycle theories and in "supplementing and completing what has already been done."⁸ Nevertheless, in a chapter on "The Psychology of Crises" he stated, thirteen years prior to its development by Pigou, most of the essential points of an "optimistic error" theory of cycles in which "pessimistic error" was

⁵ Frank A. Fetter, *The Principles of Economics* (New York: Century Co., 1904), p. 353.

⁶ *Report of the Monetary Commission* (Washington: Government Printing Office, 1877), p. 120.

The foregoing criticism of the explanations of crisis and prosperity in terms of emotional processes is not intended to deny the contribution of such writers in calling attention to the importance of psychological attitudes in the various stages of the cycle; or to deny the amplifying effect upon cyclical fluctuations of extreme mass optimism or pessimism even though real factors may be the initial directional determinants of these mental attitudes. The point here is that most of the American writers erred seriously in designating loss or restoration of confidence as the single and final causal factor instead of considering it as one causal variable among many and in failing to carry their analyses far enough to uncover the real factors influencing the state of confidence.

⁷ Edward D. Jones, *Economic Crises* (New York: Macmillan Co., 1900), chap. ix. Material used by permission of the Macmillan Co.

⁸ *Ibid.*, p. 220.

important largely by implication.⁹ Jones clearly considered emotional processes only one among several factors responsible for the business cycle rather than the sole or primary cause, but he also felt that his psychological theory went "very far to account for the occurrence of economic crises."¹⁰

BASIC PRINCIPLES AND ASSUMPTIONS

Brief examination of the basic principles and assumptions upon which the theory rests is necessary to any understanding and appraisal of Jones's cycle theory. Although not specifically enumerated by him in this order, the following principles and assumptions are crucial in his theory:

1. The dominance of the desire to obtain wealth.¹¹
2. The length and complexity of the production process and the size of the market force businessmen to act upon "expectations and forecast," but the "objective data for judgment are defective"; hence "the course of modern business is uncertain in the extreme."¹²
3. These two, namely, the desire for wealth and the necessity of forecasting upon the basis of inadequate data, mean, according to Jones, that "beliefs regarding" the future will "be formed according to our desires."¹³
4. The process of selection in the economic system tends to place in responsible, decision-making position the "intellectual type most prone to exaggeration."¹⁴
5. The "competitive system" forces "optimistic activity" upon its members because the "rules of the game" require people to talk and act successfully irrespective of the realities.¹⁵

⁹ *Ibid.*, chap. ix; cf. A. C. Pigou, *Unemployment* (New York: Henry Holt & Co., 1913), chap. viii. It was in this work that Pigou first adumbrated his theory of cycles..

¹⁰ *Op. cit.*, p. 207.

¹¹ *Ibid.*, p. 188.

¹² *Ibid.*, p. 195.

¹³ *Ibid.* The formation of belief "according to our desires" would help explain the upward movement of the cycle; the corresponding force in the downward movement would be the formation of beliefs according to our fears. As pointed out later, Jones failed to explain very clearly the operation of fear in the downward movement of the cycle.

¹⁴ *Ibid.*, p. 191. This assumption is open to serious question. It would appear a more reasonable assumption that in a competitive system the process of selection tends to place in responsible managerial positions those most likely to make correct decisions.

¹⁵ *Ibid.*, pp. 200-201.

6. Choices in the economic system are not independent but closely interconnected through the "intimate association" of controlling businessmen "compacted together in business sections of great cities," and by the process of competitive emulation.¹⁶
7. Erroneous optimistic individual action produces further error (*a*) because of its sympathetic influence upon others and (*b*) because the initial optimistic commitment provides objective data for rational, individual, economic action in the same direction.¹⁷

EFFECT OF DESIRE UPON RECOLLECTION AND EXPECTATION

The assumption that, because of the desire for wealth and the necessity of forecasting upon inadequate data, opinions regarding the future are likely to "be formed according to our desires" is so fundamental to Jones's whole analysis that it is essential to examine his argument on this point in some detail. Here Jones started from what he termed the "guiding principle," namely, that a "powerful emotion tends to bring all the operations of the mind into harmony with itself," and argued that strong desire affects both recollection and expectations.¹⁸ His theory of recollection involved four cardinal points:

1. The force of the original impression . . . depends upon what our interest in the matter was at the time and what our appreciation of the significance of the occurrence was.¹⁹
2. There is a tendency to confuse the recollection of external actualities with that of subjective states due to imagination and desire.²⁰
3. There is a continual selection of details in the act of recalling. If we have been influenced by strong desires, we have been recalling and dwelling upon such matters as have harmonized with these desires. . . . A theory to explain the circumstances is formed. The recollection of details not agreeing with or fitting into this theory . . . fade little by little. . . .²¹
4. Finally, at any moment of recollection the tendency is, if one is influenced by a strong desire, to permit only such recollections to develop themselves and absorb the attention as harmonize with the present state of mind.²²

¹⁶ *Ibid.*, p. 204. Jones's emphasis upon the concentration of businessmen in large cities and his phrase "compacted together" are strikingly suggestive of Pigou's phrase "physical contiguity" later used in the same sense (Pigou, *op. cit.*, p. 117).

¹⁷ An optimistic decision to expand the rate of purchase or production creates effective demand and increases the total money income stream of the economy, assuming, of course, an elastic money and credit system.

¹⁸ *Ibid.*, pp. 185-86 and 188.

²⁰ *Ibid.*

¹⁹ *Ibid.*, p. 186.

²¹ *Ibid.*, p. 187.

²² *Ibid.*

The dominance of desire over memory and the consequent distortion of facts through the selective process was thus the first step in Jones's argument that economic action, at least in mass, is irrational.²³

The second step in the argument depended upon the theory that "expectation" or "anticipation" is influenced by desire.

The effect of a strong desire upon expectation is equally remarkable. In an act of anticipation the judgment is to a certain extent freed from the correctives and checks which restrain us from error in realizing the present and recalling the past. There is thus range for a greater degree of error due to prejudice. And these errors may everywhere be observed in acts of anticipation.²⁴

Developing this point, Jones contended that the "field of imagination lies close to that of expectation" and argued:

What we may logically expect in the future, from analogy with the past, is not what we actually do expect. . . . What is vividly imagined and intensely desired tends to become, little by little, a matter not only wished for but planned for, and finally expected with more and more confidence.²⁵

Thus upon the basis of the "wish is father to the thought" theory of memory and judgment hypothesis Jones concluded, as previously stated, that "in so far as the cause of the future is uncertain our beliefs regarding it are likely to be formed according to our desires."²⁶

RELATION TO ECONOMIC ACTIVITY

Such an effect of desire upon memory and expectation Jones related to crises through its effect upon economic behavior: "The application of this to the subject of crises comes through the study of the effect which an intense desire to accumulate wealth will have upon the conduct of individuals in economic matters."²⁷ Though not explicitly stated, it is certainly implicit in Jones's theory that optimistic bias on the part of the business decision-making group acting upon an assumed state of economic equilib-

²³ On this point Jones spoke of the "distortion of recollection," which "tends to destroy the basis of sound judgment," and "in falsifying memory it renders nugatory the results of experience" (*ibid.*, p. 188).

²⁴ *Ibid.*, p. 188.

²⁵ *Ibid.*, pp. 188-89.

²⁶ *Ibid.*, p. 188.

²⁷ *Ibid.*

rium would be powerful enough to initiate an upward cyclical movement. The crucial point is that Jones assumed the individual decision-maker to make an optimistic error in his estimate of the future and, acting upon his overestimate, consequently to make an overcommitment in terms of the real market situation. It is not clear, however, from his analysis whether such an overcommitment (error) takes the form of the purchase or production of a larger quantity or the payment of a higher price for the same quantity.²⁸ It should be noted that with reference to this particular point Jones was concerned primarily with speculative purchase and sale in the securities and commodity markets.²⁹

THE UPWARD MOVEMENT OF THE CYCLE

In the cyclical upswing Jones argued that mass error exerted a cumulative force for two reasons. First, "intimate association," speed of communication, sympathy, and imagination make for rapid propagation of optimistic errors. Second, optimistic economic decisions once taken and put into effect provide a real basis for a rational increase in economic activity on the part of others. Granting that "each individual may be capable of only a limited error in estimating the future condition of industry," Jones pointed out that the testimony of "his opinion as expressed or implied by his acts upon the market" did "serve as a basis for a still more erroneous estimate made similarly by others." The errors thus become cumulative:

. . . . With each successive transfer of influence an increment of error is added which lifts the entire group, step by step, through the mutual accumulations of error in the direction of overconfidence and recklessness to a point of absurdity further than any one of those involved would, with the ordinary use of his reason, have advanced himself singly.³⁰

Jones clearly argued that the cumulative force of numerous small errors over a period of time could initiate and carry through a cyclical upswing. An upward cyclical movement initiated by the rejection of a "conservative and restraining policy . . . for one

²⁸ See R. F. Harrod, *The Trade Cycle* (London: Oxford University Press, 1936), p. 45.

²⁹ *Op. cit.*, p. 203.

³⁰ *Ibid.*

which embodies an optimistic theory" is likely for several reasons to move upward for a considerable time before being halted through the revelation of the "inherent error" upon which it is built.³¹ As Jones put it:

The organization of business is now such that it does not furnish an *immediate check* to unwise activities. The system is one which permits the inflation of values and an overdraft of credit for a period long enough to give an impetus to such undertakings and gives an unfounded feeling of success to an operator who may be as a matter of fact on the straight road to disaster.³²

The time lag between erroneous economic commitments based upon the "optimistic theory" and the revelation of these errors Jones attributed to (1) the increasing use of credit during the upswing which produces an "inflation of values" and illusory prices and (2) the rising demand for speculative buying carried cumulatively upward by cumulative mass error.³³

Jones, however, failed to consider the time lag between the initial commitment arising out of the optimistic decision to expand productive facilities and the flow of economic goods and services produced by the additional equipment as an important factor influencing the length of the optimistic cyclical rise. On this point, Jones, by assuming an elastic money and credit system, might have argued effectively that expenditures for plant and equipment based in the first instance upon irrational and optimistic expectations would increase the flow of monetary purchasing-power to the factors of production and thus increase the demand for goods and services without simultaneously increasing their supply—a situation which would continue to prevail until the period of gestation was completed. Although he was fully aware that the industrial system produces economic goods "by means of long-enduring and complex processes" and that these "methods of production fit us into a chain of influences and activities which began in the past and for the consummation of which we must look to the future," Jones did not suggest, even by implication,

³¹ *Ibid.*, pp. 196-97.

³² *Ibid.* (italics mine).

³³ *Ibid.*, p. 184. "These changes give expression to themselves by what appears to be a rapidly expanding business in which an increasing use is made of credit."

that the period of gestation was a significant factor prolonging the cyclical upswing by obscuring for a time the erroneous economic decisions upon which the upward movement was built.

THE UPPER TURNING-POINT

Once the upward cyclical movement is under way there is, according to Jones, a progressive "gradual growth of optimism" accompanied by a "gradual increase in activity and a perceptible and constant quickening of interest" which, as the "pre-crisis period advances," produces "an increasingly unsound business judgment."³⁴ On the economic side, "these changes give expression to themselves by what appears to be rapidly expanding business in which an increasing use is made of credit."³⁵ But, since the cyclical upswing is built upon cumulative errors in expectations, it must eventually collapse: "The exaggeration of economic prospects begets economic activity, but falsely directed activity, the result of which is to erect a commercial structure which at some point in its building must fall with disastrous ruin because of its *inherent error*."³⁶ Interestingly enough this passage contains essentially the same argument later advanced by Pigou.

Although he insisted that the "desire for wealth" reflected in the pre-crisis optimism "erects the economic machinery destroyed in the crises" and pointed out that time must eventually expose the "inherent error" underlying economic activity based upon the "optimistic theory," Jones failed to offer any specific analysis of the economic mechanism by means of which the cyclical upswing finally produces a crisis.³⁷ If one grants his basic assumptions and argument, the correctness of his self-evident conclusion concerning the collapse at the peak of the cycle follows as a matter of course; but this does not excuse his failure to give some attention to the specific reversing forces operating at the upper turning-point.

³⁴ *Ibid.*, p. 184. It is this constantly operating force which erects the economic machinery destroyed in the crisis and operates in such a way as to lead to crisis.

³⁵ *Ibid.*

³⁶ *Ibid.*, p. 192 (*italics mine*); cf. p. 182 for similar reasoning.

³⁷ *Ibid.*, pp. 192 and 184.

PESSIMISM IN THE DECLINE

Unlike Pigou, thirteen years later, Jones did not analyze the cyclical process from the crisis (upper turning-point) to the trough of the depression; hence it is difficult to determine the role which he assigned to "pessimistic error" in driving economic activity below the level dictated by the real factors in the situation. There are no definite statements to show positively whether Jones considered the activity-amplifying, pre-crisis optimism to be replaced by activity-contracting, post-crisis pessimism or whether he thought, instead, that optimism merely gave way to more or less aimless despondency which did not exaggerate the downward movement; but it is reasonably clear, by implication at least, from several brief and scattered statements that Jones considered boom optimism changed into post-crisis pessimism. At one point, discussing the psychological change from boom to crisis, Jones said this change comes

with great rapidity because the mechanism of trade and especially of currency suddenly turns the full force of the competitive impulse in a reverse direction, and intensifies it, inasmuch as the struggle to save property in danger of loss may be more severe than the primary struggle to secure it.³⁸

The details or implications of the economic and credit mechanism involved in this sudden change were not worked out. Elsewhere he described the period "subsequent to the crisis" as characterized "by a very deep feeling of depression and a very general lassitude" consistent with his interpretation of the general law of feeling, i.e., action and reaction.³⁹ Here he observed that the change in emotions from the boom to the crisis "corresponds to the general law of change of feeling"⁴⁰ Also, consistent with his previous argument that "for each stage of crisis there is a special and characteristic mental state," Jones argued that "each phase of the cycle represents a general view taken of the future course of

³⁸ *Ibid.*, p. 208.

³⁹ *Ibid.*

⁴⁰ Pointing to the rapidity of change from one emotional state to its opposite Jones argued: "Such a jump from the top of the scale [of emotions] to the bottom as is witnessed during the crisis corresponds to the general law of change of feeling and is a manifestation of the social law called by Schaffle the 'law of contrast' " (*ibid.*, p. 209).

trade.”⁴¹ Lastly, pessimism as an effective depressing force in the cyclical decline was strongly suggested in the following passage:

We may conclude that the depression at the period subsequent to a crisis is due, first of all, to the excitement created by business prospects prior to the crisis and that this excitement is not immediately extinguished in the crisis but is *altered in form*.⁴²

Here the phrase “altered in form” obviously implies a change from optimism to pessimism. The formation of beliefs “according to our desires” was an important force in Jones’s explanation of the upward movement of the cycle, but he did not explicitly designate the formation of beliefs according to our fears as a force in the cyclical decline. Hence, despite the implications and suggestiveness of several statements, as noted above, Jones failed to indicate specifically whether or not he considered pessimism an exaggerating force depressing the rate of business activity below the level it would reach during a period of a cyclical decline on the basis of objective appraisal of real factors alone.

THE LOWER TURNING-POINT

Jones presented no analysis of the forces operating at the lower turning-point. He merely said:

As the depression of the post-crisis period wears away and a normal condition of business is established, the end of the crisis cycle is reached, and the way is cleared for the first stirrings of enterprise and the first promptings of hope which herald the beginning of a new cycle.⁴³

Here the reference to “normal conditions of business” most probably means adjustment in various real rather than psychological factors. But since Jones failed to indicate the specific readjustments and operating forces implied in this wearing-away process which leads to the re-establishment of “normal conditions of busi-

⁴¹ *Ibid.*, p. 183. Here Jones had just quoted Lord Overstone’s famous description of the cycle and said: “This description presents to us a succession of stages through which business passes during the complete crisis-period” (p. 83, italics mine). Note the use of the term “crisis-period” for “business cycle.”

⁴² *Ibid.*, p. 211 (italics mine).

⁴³ *Ibid.*, pp. 211–12. Again note Jones’s use of the term “crisis cycle” for the modern term “business cycle.”

ness," one is left, as is so frequently the case, with the alternative of leaving the crucial question of the lower turning-point unanswered or of entering the realm of pure speculation as to what, if anything, the author meant. Certainly, it is not clear from his brief analysis whether Jones thought that the arresting of the downward movement and the reversal of the cycle at the bottom was due to the readjustment of real forces or to the gradual lifting of pessimism and the restoration of confidence. Hence it is only logical to follow Jones and leave the question of the lower turning-point unanswered rather than speculate as to what answer he would have given had he given one.

Although Jones presented by far the most complete and fully developed statement of the psychological theory of business cycles in the United States from 1860 to 1900, the short statements of two other writers, namely, Horace White and Henry Bronson deserve brief consideration.

In 1881 Horace White emphasized the fact that cyclical fluctuations in business activity are determined basically by psychological attitudes when he said: "These undulations of trade, of alternating high and low prices, of alternate activity and depression in business *have their roots in the mental and moral constitution of mankind.*"⁴⁴ Here White was simply making more positive the line of thought given emphasis by John Mills, an English businessman, who in 1867 read a paper before the Manchester Statistical Society in which he suggested that "the malady of commercial crises is not in essence a matter of the *purse* but of the *mind*."⁴⁵ Noting that "each cycle is composed of well-marked normal stages," Mills argued that "each stage of its [the credit cycle's] development is traced to a parallel change of mental mood."⁴⁶ Then he made his classic suggestion: "The subject of commercial fluctuations will acquire a new dignity if it can be found striking

⁴⁴ "Commercial Crises," *Lalor's Cyclopaedia of Political Science, Political Economy, and Political History of the United States*, ed. John J. Lalor (Chicago: Rand, McNally & Co., 1881), I, 524 (italics mine).

⁴⁵ John Mills, "On Credit Cycles and the Origin of Panics," *Transactions of the Manchester Statistical Society, Session 1867-68*, pp. 11-40.

⁴⁶ *Ibid.*, pp. 16-17.

its roots below the level of its physical particulars, and proving itself cognate with the science of the mind."⁴⁷ Starting from the assumption that "the greatest amount of gain with the least amount of effort is what all but an imperceptible fraction of mankind are striving for," White proceeded to argue that this force operating in conjunction with any specific event or conjuncture of forces which created the expectation of more than ordinary profits in any sector of the economy would initiate a period of speculation and overtrading which would culminate in a crisis.⁴⁸ White believed that "every great speculative movement has an ascertainable starting point," which he characterized as "anything which acts strongly upon the imagination of traders. . . ."⁴⁹

Four years earlier, in 1877, Henry Bronson, a doctor, gave considerable attention to the psychological forces operating in financial and commercial crises.⁵⁰ One gravely suspects that Bronson fell into the argument largely by analogy with the nervous system of the human body and that he never reached any definite conclusion as to what extent his own statement was analogical and to what extent he really considered psychological factors causal in the cycle.⁵¹ Beginning with the assumption that the mind "has its periodic disturbances" and is in "perpetual alternation" between "excitement and indifference, confidence and doubt,"⁵² Bronson reasoned that "moral epidemics of which financial and commercial ones are special kinds, spread by sympathy and the imitative faculty from one mind to another."⁵³ He observed that "financial epidemics" like others have "unique symptoms" and noted that they "have three stages, one characterized by depression [depression], another by reaction and excitement [revival and prosperity], and another by collapse and debility [crisis and the decline]."⁵⁴ The first stage (depression) "grows out of the shock which the nervous system has received at the winding up of the preceding epidemic [panic]," which panic, Bronson held, "pro-

⁴⁷ *Ibid.*, p. 13.

⁴⁸ *Ibid.*, p. 526.

⁴⁹ *Ibid.*, pp. 526-27.

⁵⁰ *The Money Problem* (New Haven: Hoggson & Robinson, Printers, 1877).

⁵¹ In an earlier passage Bronson had presented an excellent description of an inflationary cyclical upswing (*ibid.*, pp. 45-47).

⁵² *Ibid.*, p. 83.

⁵³ *Ibid.*, p. 84.

⁵⁴ *Ibid.*, p. 87.

duced temporary lesions in the nervous centres, modifying the mental constitutions.”⁵⁵ This nervous shock, by producing hesitation and delay in the minds of both buyers and sellers, according to Bronson, increases the rapidity of the decline in property values and drives the decline below the level justified by objective factors.⁵⁶ Pessimistic error was clearly implicit in his argument on this point.

Although Bronson argued that “the nervous depression, discouragements, lack of confidence . . . must ere long, in virtue of a well-known psychological law, give place to reaction,” he apparently considered this reaction dependent in a large measure upon various adjustments in the economy itself, namely, the elimination of excess inventories, the lowering of costs, and the readjustment of relative prices.⁵⁷ In his analysis, psychological reaction was an important force in the turn from depression to recovery.

CONCLUSION

While he emphasized the fact that fundamentally business cycles “have their roots in mental” attitudes, White hardly did more than to argue that the ultimate cause of cyclical fluctuations was the propensity to speculate, which is not very closely related to the usual statements of the psychological theory of business cycles. In Bronson’s brief analysis the disturbing shift from psychological to real factors throughout make it impossible to determine very accurately the relative causal weight given to each type of force. While obviously cognizant of the high correlation between changes in objective and subjective forces, Bronson never really got down to explaining observed changes in business activity in terms of psychological factors. In fact, on the basis of several statements, one might say with almost equal truth that Bronson simply considered psychic changes a function of the given set of real factors. Hence, because of his failure to indicate specifically how psychological forces produce cyclical fluctuations in business activity, aside from his implied application of the principle of psychological reaction and the importance of pessimistic error

⁵⁵ *Ibid.*

⁵⁶ *Ibid.*, p. 91.

⁵⁷ *Ibid.*, p. 89.

as a deflationary force in the cyclical decline, Bronson can hardly be credited with having advanced the argument much beyond the Mills-White hypothesis that the fundamental cause of crises is mental.

It was Jones who, despite the fact that he was primarily interested in synthesizing and supplementing fragmentary and often conflicting crisis or cycle theories (most of his study was really concerned with this problem), must be credited with having extended the analysis of the psychological theory of cycles considerably beyond the point where he found it. His contribution consisted, first, in giving greater concreteness and definiteness to the vague statements of previous writers that recurring crises "have their roots in the mental and moral constitution of mankind" and, second, in analyzing the upward cyclical movement instead of confining his attention, as many writers did, to the crisis and decline. In his effort to forge the link between the underlying mental (or moral) causes and the mechanism of cyclical fluctuations, Jones undertook two things. First, he offered an explanation of irrational mass economic behavior which, in the author's opinion, is crucial to any psychological theory of cycles. Second, he analyzed the mechanism through which this irrational economic behavior effectively produces the cumulative upward cyclical movement which eventually collapses in the crisis. The validity of the theoretical explanation of business cycles in terms of emotional processes put forward by Jones depends, of course, largely upon his theory of psychology, which is so basic to his contention that the existence of an optimistic bias produces individual and then mass irrational economic behavior, which he considered primarily responsible for the cyclical upswing.

The most serious objection is that the different links in this chain of assumptions are too weak to constitute the principal explanation of business cycles. The second most serious criticism is the incompleteness of the theory. Despite these defects, Jones must be credited with having presented the most significant and acute analysis of this type of cycle theory prior to its development by Pigou thirteen years later.

CHAPTER III

SAVING AND INVESTMENT THEORIES OF THE BUSINESS CYCLE

THEORIES of the business cycle involving some aspect of the saving and investing process were more prominent in the United States from 1860 to 1900 than any other except monetary theories. Roughly, the various theoretical explanations of crises, depressions, and business cycles advanced by American writers from 1860 to 1900 which designated some aspect of the accumulation and investment of capital as the principal causal force may be classified into two broad groups according to the relative capital supply at the upper turning-point. One group—the oversaving, overproduction cycle theories stated by Uriel H. Crocker and Frederick B. Hawley—attributed crises and depressions to a generalized oversupply of capital and capital equipment relative to the demand for consumer goods and services at cost prices. These writers and several minor ones put forward oversaving, overinvestment theories which explained the upper turning-point and cyclical decline in terms of a generalized oversupply of commodities or an oversupply of productive capacity for producing goods and services. A second type of theory, namely, the explanation of cycles advanced by Charles A. Conant, on the other hand, attributed these recurrent phenomena primarily to the quasi-periodic accumulation of the loan fund during the downswing and depression and its exhaustion in the later stages of the boom.

The oversupply of capital or overinvestment theories are sharply different from the misdirected production theories of crises, treated in a later chapter, which involved a maladjustment in the horizontal structure of production. The partial overproduction theorist maintained that the crisis and depression were the result of an actual or potential oversupply in a few lines of industry relative to the given distribution of consumer demand.

The oversupply of capital theories attributed the crisis and depression, not to a distribution of the current income stream different from the supply of goods and services, but to an oversupply of the total volume of consumable commodities relative to the total money income stream available for the purchase of consumers' goods at cost prices. The oversupply of capital theories are simply the general underconsumption or overproduction theories of business cycles.

THE OVERPRODUCTION THEORY OF CRISES AND DEPRESSIONS DEVELOPED BY CROCKER

In a number of letters, articles, pamphlets, and short monographs from 1877 to 1895 Uriel H. Crocker revived and attempted to defend a crude variant of the Sismondi-Chalmers-Malthus general underconsumption theory of cycles. Though he added little or nothing to previous formulations of this theory, brief attention is given here to his writings primarily because he was the principal American exponent of this theory which, more than any other, persistently reappeared in popular writings. Consistent with the general underconsumption theory Crocker argued that recurrent crises and depressions were provoked by a general oversupply of goods and services resulting from the diversion of too large a portion of the current income stream to savings and too small a portion to spending for current consumption. Saving, Crocker argued, has a twofold effect in producing a maladjustment in supply and demand: First, saving produces an immediate decline in the demand for consumers' goods, and, second, saving creates overproduction of consumers' goods and services through the increase in productive capacity from the productive investment of savings.

ATTACK ON OTHER THEORIES

In 1876 and 1877 Bonamy Price, an English economist, stated a theory of crises and depressions based on the classical wages-fund doctrine in which he argued that these phenomena are due to scarcity of capital resulting from overconsumption, waste, and destruction of wealth.¹

¹ Bonamy Price, *Currency and Banking* (London: Henry S. King & Co., 1876), pp. 134-49; "One per Cent," *Contemporary Review*, XXIV (April, 1877), 778-99.

In order to establish the validity of his general overproduction theory of crises and depressions it was necessary for Crocker to (1) refute the scarcity of capital theory of crises advanced by Price, (2) disprove the existence of misdirected production which was advanced by several economists as the crucial fact in the crisis, and (3) refute the widely accepted J. B. Say-James Mill-Ricardo argument most recently put forward by J. S. Mill concerning the theoretical impossibility of a general glut. Crocker argued that the scarcity of capital theory of crises was disproved by the existence of low interest on capital, large stocks of unsold consumable commodities, and idle plants during depression.² On the crucial question of whether the depression is preceded and caused by excess productive capacity in particular lines or in all lines of industry—i.e., whether the difficulty is caused by a maladjustment in the horizontal or in the vertical structure of production—Crocker erroneously argued that if depressions are due, as some claimed, to overproduction in particular commodities then underproduction must exist in others; hence the latter would be profitable, and productive resources would shift from the unprofitable oversupplied ones.³ Two errors invalidate Crocker's argument on this point. First, he failed to consider the possibility that partial disequilibrium may produce general disequilibrium; and, second, as Veblen pointed out, Crocker's argument was in terms of absolute rather than of relative rates of profit or loss.⁴

THE CASE FOR OVERPRODUCTION

Aware that the general overproduction theory of cycles had been rejected by economists in general, Crocker contended not only that the Say-Mill-Ricardo argument concerning the theoretical impossibility of a general glut was inconsistent with the ob-

² Uriel H. Crocker, *Over-production and the Commercial Distress* (Boston: Clarke & Carruth, 1887), pp. 23-24; *The Cause of Hard Times* (Boston: Little, Brown & Co., 1895), pp. 55-59; cf. particularly pp. 58-59 n. for direct attack upon Price's position.

³ *The Cause of Hard Times*, pp. 18-21; cf. *Excessive Savings* (Boston: Clarke & Carruth, 1884), p. 34.

⁴ Thorstein B. Veblen, "The Over-production Fallacy," *Quarterly Journal of Economics*, VI (July, 1892), 486-88.

served fact since general gluts did exist but that the basic assumptions of the argument were contrary to two important facts.⁵ Crocker maintained that, inconsistent with Mill's argument, first, a part of the total demand in the economic system was for income-producing property instead of consumers' goods and services, and, second, the ownership of durable capital goods by income-seeking entrepreneurs permitted short-run production of consumption goods in excess of "effective demand," the latter being tacitly defined as the quantity purchased at prices equal to total average reproduction cost per unit.⁶

Against Mill's argument that a general glut was impossible because men would not continue to produce unless they desire to consume directly or exchange their commodities for others which they do desire to consume, Crocker argued:

This argument is very plausible, but it overlooks one important consideration. A large portion of the want or the demand of the community at the present day, is of a peculiar character. Men want what we call 'profitable investment.' . . . But an important want, both of capitalist and of laborer, is the want to build and own more factories. ⁷

Consistent with his acceptance of the underconsumption theory, Crocker attributed recurring crises to the diversion of too large a portion of the income stream to saving rather than to spending. The crisis producing oversaving, Crocker laid in turn to an "almost universal struggle among men to obtain what we may call income producing investment."⁸ In his early writings Crocker, like Hobson at a later date, emphasized oversaving as a function of the inequality of incomes; but he did not make saving as thoroughly dependent upon the distribution of income as did Hobson.

This saving process, according to Crocker, has a twofold effect in producing disequilibrium. First, it reduces the purchasing-

⁵ *The Cause of Hard Times*, p. 18.

⁶ Crocker defined overproduction as follows: "If, however, a commodity will not sell at the ordinary profit, over what it costs at the time of sale to reproduce it, there is certainly the best of evidence that there has been an excessive production, resulting in an excessive supply of the commodity . . ." ("The 'Over-production' Fallacy," *Quarterly Journal of Economics*, VI [April, 1892], 354).

⁷ Crocker, *Excessive Savings*, pp. 30-32.

⁸ *Ibid.*, p. 22; cf. pp. 32-33.

power available for the purchase of consumers' goods, and second, the productive investment of the savings eventually increases the supply of goods and services. Crocker put his argument thus:

As the troubles of the recent hard times have been due mainly to a want of demand for products, . . . to a failure of demand to keep pace with production, . . . we can see, further, that *if the great army of savers, instead of devoting so much of their surplus funds to the creation of superfluous machinery of production, had employed more of that surplus in the purchase of products to be consumed for their own immediate comfort or pleasure, not only would the superfluous new machinery with its resulting troubles never have been called into being, but these very people would have themselves created an added demand for products,—a demand that would have kept in full action all the old and also some new machinery, would have kept demand up to an equality with supply, would have prevented all the disastrous results of the competition between the owners of the superabundant machinery, and in a word, would have prevented entirely the occurrence of any hard times.*⁹

Crocker's conclusion does not follow from his argument. As J. B. Clark and others have shown, demand for income-producing equipment is simply demand for a portion of the total product of the economy, and such demand is consistent with continued equilibrium of the system.

On the second major reasons for general overproduction Crocker argued:

But if it can be shown that men sometimes carry on production, not primarily for the purpose of supplying themselves with the [consumable] products of others, but for an entirely different, and independent reason, Mill's argument necessarily falls to the ground.¹⁰

Crocker argued that one such important motive for production does operate:

That a powerful incentive to production other than the desire of the producer to obtain the products of others, exists at the present day, cannot well be denied. This incentive is to be found in the willingness of the owners of

⁹ *The Cause of Hard Times*, pp. 41-42 (italics mine). It is interesting to compare this with Hobson's more concise first statement of the same argument in A. F. Mummery and J. A. Hobson, *The Physiology of Industry* (London: John Murray, 1889), p. v. It should be noted that Crocker's first statement of his theory appeared in 1877, twelve years before Hobson's first published work on the subject.

¹⁰ *The Cause of Hard Times*, p. 22.

the present immense amount of machinery of production to keep that machinery busy in the work of creating products, even when they can only dispose of those products for less than cost [total cost including overhead], rather than to suffer the greater loss that must come to them if the machinery is allowed to be idle.¹¹

More directly in support of general overproduction in excess of "remunerative [effective] demand" Crocker added:

*A production of a commodity not based upon and strictly proportioned to the remunerative demand for the product, but, with the knowledge of the producer, in excess of that demand, may arise, and has in some cases actually arisen, when machinery for the production of the commodity has been created with a capacity of production in excess of the remunerative demand.*¹²

The argument is no proof of overproduction as an explanation of a crisis and a cyclical decline. First, in the short run (the economic life of existing capacity), durable plant and equipment involving large fixed costs, ignoring spoiling the market, etc., theoretically should be operated at the point where marginal revenue equals marginal costs irrespective of whether prices per unit equal total average per unit costs or not. Thus, in the short run, average price per unit need not cover those costs which do not vary directly with quantity of production, such as the cost of, and return on, durable capital equipment. Second, obviously the assumption of a "capacity of production in excess of remunerative demand" assumes general overproduction as a fact and hence cannot be offered as proof of itself. Thus Crocker's labored attempt to prove general overproduction on the grounds that durable equipment is operated to produce goods when total costs are not covered is completely circular in that it assumes excess productive capacity as a starting-point.

Crocker's writings have been treated at some length here simply because he was the chief American exponent, during this period, of the crude oversaving, underconsumption theory of crises and depressions, which appeared in the popular press more frequently than any other and, as such, are therefore of some importance in

¹¹ *Ibid.*, p. 23; cf. pp. 91-93.

¹² *The Cause of Hard Times*, p. 91. Crocker defined "remunerative demand" as "the demand for a commodity at such a value as will afford the ordinary profit over the necessary cost of its production" (*ibid.*, p. 87).

any complete study of theoretical explanations of business cycles during the period. Yet, in the more than twenty years Crocker argued for the theory he failed to present any new argument, offer any sound theoretical reason for the validity of the theory, or explain the sense in which such a theory could add anything to the explanation of business cycles.

MINOR STATEMENTS OF THE GENERAL OVER-
PRODUCTION THEORY

Several writers briefly stated or argued that crises and depressions were due to generalized overproduction which some attributed primarily to external forces and which others explained in terms of the saving and investing process.

John R. Commons, writing of the depression of 1893, simply made the statement without factual or theoretical support that the cause of the depression was overproduction.¹³ Cooke attributed "underconsumption" to the lack of purchasing-power in the hands of wage-earners because of low wages. He argued that "the main cause is the absence of a body of consumers, sufficient both as to ability and willingness, to constitute a market for the products so enormously increased by improved methods of production, transportation and sale."¹⁴ All questions of theoretical and factual validity aside, since Cooke failed to work out any of the details, stripped of its verbiage nothing remains of Cooke's argument except the bald statement that depressions are due to low wages.

Emphasizing the effect of hoarding, Selden, fully aware that the general overproduction theory of crises had been generally rejected by economists, argued that short-run or "temporary over-production . . ." existed in the "sense that all the people have made and are making more things than they have the money to pay for."¹⁵ The lack of effective purchasing-power he attrib-

¹³ *The Distribution of Wealth* (New York: Macmillan & Co., 1893), p. 83.

¹⁴ Frederick H. Cooke, "Industrial Depressions: Their Cause and Cure," *American Journal of Politics*, III (July-December, 1893), 603.

¹⁵ G. C. Selden, "An Approximate Method of Measuring Excessive Production or Consumption," *Quarterly Journal of Economics*, XV (November, 1900), 138.

uted to hoarding on the part of individuals or banks. This hoarding was produced by uncertainty which keeps businessmen from spending funds as rapidly as they become available. As Selden put it:

But suppose that, through fear of political changes or for any other reason, capitalists decide that it is safer not to reinvest immediately but place the \$10,000 currency they have received in the bank-vaults for safe keeping. The result is that \$10,000 less than before is paid out in wages, the workmen have \$10,000 less to spend, and the demand for produce and manufactured articles is correspondingly lessened.¹⁶

The argument was not developed in any detail.

Even though he presented an excellent analysis of the role of an elastic credit system in cyclical fluctuations and partially accepted "disproportionate production" as an explanation of crises, Hadley apparently slipped into a general oversaving or under-consumption theory of cycles similar to that advanced by Crockcr.¹⁷ On this point he said:

The modern civilized world is in perpetual danger of under-consumption. Too many of its members use their supplies of products, not to purchase the consumable products of others, but to duplicate machinery and other permanent investments.¹⁸

Repeating the same argument in more detail, Hadley said:

But in more modern times, there is a temptation to invest capital in machinery to such a degree as to reduce the demand for the products of machinery. If one man tries to save, and convert his capital into permanent investments, he can do so; but if every one tries to save, a great many people will fail to realize their expected profit because of an over-production of machinery. It is in this way, rather than by a fall in the rate of interest, that the effect of over-accumulation of capital shows itself most conspicuously.¹⁹

This is simply a brief statement of the crude general overproduction position, but it is significant because with it Hadley suggested that overaccumulation of capital is necessarily related to changes in tastes and technology. He pointed out that "in a given

¹⁶ *Ibid.*, pp. 139-40.

¹⁷ Arthur T. Hadley, *Economics* (New York: G. P. Putnam's Sons, 1900), pp. 146-48.

¹⁸ *Ibid.*, pp. 147-48.

¹⁹ *Ibid.*, p. 147.

stage of the arts, and with given habits of consumption, a certain amount of machinery can be advantageously utilized; a larger amount than this is waste."²⁰ A literal interpretation of the phrase "to duplicate machinery" in one of the foregoing quotations suggests the same thing. Hadley obviously assumed additional capital (saving) used simply to increase the number of identical units of capital equipment in a given plant or all plants in exactly the same proportion. Under such restricted condition any per unit cost reduction, and hence any increase in the quantity demanded at cost prices, must result, if at all, from economies of large-scale production. In particular industries such cost reductions may be large, but for industry as a whole, which is Hadley's case, the reductions in per unit costs would probably be too small to produce an increase in demand proportionate to the increase in capital investment. Consequently, with an increase in savings and the duplication of capital equipment, prices are likely to decline. A larger lump of capital is being employed to produce a dollar's worth of final consumers' goods. The increased capital, at demand prices for capacity production of consumers' goods, does not yield the required rate of return. There is overproduction relative to demand. Obviously, this line of reasoning which involves the assumption that increased savings in the absence of technical progress and changes in consumer tastes will be used to "duplicate machinery" in the sense of an equal percentage-wise increase in the supply of each type of existing equipment is too restricted and unrealistic. Such an assumption overlooks the possibility of a decline in the interest rate which may permit the installation by others of cost-reducing equipment already in use by some producers. The validity of Hadley's position requires that the interest rate not decline with increased savings.

OVERACCUMULATION OF CAPITAL THEORY OF CYCLES
FORMULATED BY HAWLEY

THE ESSENTIAL POINTS OF THE THEORY

In 1882 and again in 1907 Frederick B. Hawley advanced a significant variation of the oversaving theory of business cycles in

²⁰ *Ibid.*

which he attributed these phenomena to the overaccumulation of capital relative to population at the peak of the cycle and its readjustment during the depressions.²¹ Although Hawley was at some pains to make a technical distinction between "over-production" and "over-accumulation," he, nonetheless, argued that through saving the supply of capital accumulates more rapidly than the demand for capital and that this produces general disequilibrium characterized by a general glut. In the final analysis his theory of cycles is really an oversaving, underconsumption theory. As Hawley put it:

A general glut is the result, not, as Mill assumes, of over-production, but of over-accumulation; and we have seen, not only that this is possible, but that the tendency of society toward such a state is constant so long as it possesses an undue proportion of the accumulating class.²²

But "over-accumulation" as used by Hawley is in reality a surplus of commodities which the economy does not desire to consume and which it does not have the opportunity to employ in profitable production.

Hawley was very probably led into the general overproductionists' position, partially at least, through his vigorous attack on the Mill-Price scarcity of capital theory of crises which he rejected, partly because he considered it inconsistent with the observed facts which a correct theory of crises must explain and partly because it was based, in his view, on too rigid acceptance of the incorrect wages-fund doctrine. As evidence of the abundance of all forms of physical capital, particularly working capital and surplus stocks of consumable commodities, at the upper turning-point of the cycle instead of the scarcity necessary for the validity of the Mill-Price theory, Hawley cited, first, the large stocks of unsold commodities in warehouses and, second, the low

²¹ *Capital and Population: A Study of the Economic Effects of Their Relations to Each Other* (New York: D. Appleton & Co., 1882); *Enterprise and the Productive Process* (New York: G. P. Putnam & Sons, 1907). This last work, published seven years after the close of the period under study, presents much of the same general theory but expands and clarifies at several crucial points his early statement of it. Hence there are several references to the later work.

²² Hawley, *Capital and Population*, p. 93.

profit rate on capital during the depression. As a third argument in support of the abundance of goods on the basis of Mill's statement of the quantity theory of money, Hawley, accepting a short-run mathematical relation ("mathematically proportional") between quantity of commodities, effective volume of money, and prices and tacitly assuming a constant effective volume of money during a cyclical decline and depression, contended: "If, for instance, low prices generally prevail during a period of inactivity, it shows that the stocks of commodities must be large as compared with the stock of money."²³ From this line of reasoning he concluded that "we are forced, therefore, to account for such falls in general prices [as occur during depressions] by supposing that they are due to an actual increase of material commodities."²⁴ Such a conclusion obviously rests upon too rigid acceptance of the quantity theory of money in the short run and overlooks the fact that during a period of liquidation and depression the effective quantity of money may decline more rapidly than the quantity of economic goods and services offered for exchange. Thus because of serious errors in two of his arguments in refutation of the capital-scarcity theory of crises Hawley was left with the apparent plentifulness of commodities as the only factual support against the theory.

As for his own explanation, Hawley advanced a theory of self-generating cycles in which forces external to the economic system were the modifying rather than the primary causal ones and in which the important disequilibrating force was the "tendency of capital to increase faster than population." As Hawley put it: "What I mean is, that in the absence of war, famine, bad government, capital will *constantly tend* to outstrip population, will *periodically* succeed in so doing, and will be in excess, to the detriment of production for a greater or less portion of the time."²⁵ It was Hawley's contention that crises and "panics are the sudden and violent readjustment from an abnormal to a normal ratio of capital to population," and he maintained that the "sole cause

²³ *Ibid.*, p. 36.

²⁴ *Ibid.*, pp. 36-37.

²⁵ *Ibid.*, p. 62. "Periodically" is used throughout Hawley's discussion to mean more or less regularly recurring phenomena and not exact periodicity.

[of panics] is solely the disturbance of this [normal] ratio."²⁶ The crux of Hawley's theory is that the propensity to save operating in conjunction with various institutional factors periodically creates a capital supply in excess of current demand and this excess of capital produces a crisis and depression while the ratio of capital supply to capital demand is being readjusted to "normal."

Figuratively, Hawley thought of the total production stream of the economy as flowing into a cistern from which is emerging three streams—namely, first, a stream for consumption, second, a stream for the purchase of "opportunity," i.e., land and capital instruments, and, third, a stream for circulating capital to operate the capital instruments.²⁷ Any excess or deficit of the inflowing total production over these three outflowing streams, he argued, would be reflected by positive or negative changes in the physical quantity of goods in the cistern which, in keeping with classical terminology, he called "dead stock."²⁸ To put it another way, Hawley thought of "dead stock" as a stock of commodities (wealth) increased or decreased by excess or deficit of total production over consumption and the part of production which entrepreneurs wish currently to employ productively.

HAWLEY'S CONCEPT OF CAPITAL

The theory of crises and depressions put forward by Hawley leaned heavily upon his definition of capital and its division into "active stock" and "dead stock." Rejecting Ricardo's definition that "capital is that part of the wealth of a country which is employed in production" as too limited because it includes "only such portion of wealth as is actively engaged in production," Hawley favored J. S. Mill's statement that "all property . . . is a part of capital so soon as it, or the value to be received from it is set apart for productive reinvestment." As Hawley paraphrased Mill, capital is "all wealth destined to productive consumption, whether finally so utilized or not." Hawley defined "capital, as that portion of wealth from which an income or profit is expected in addition to a return of principal."²⁹ In the following passage

²⁶ *Ibid.*, pp. 60-63 and 89.

²⁸ *Ibid.*, pp. 13-14.

²⁷ *Ibid.*, p. 14.

²⁹ *Ibid.*, pp. 5-6 and 9.

Hawley distinguished between "active" and "dead" stock and suggested reasons for his insistence on Mill's more inclusive definition of capital rather than the one formulated by Ricardo:

Using Mill's or my own definition of capital, it will be necessary to divide it into two portions, which we will call "dead stock" and "active stock": *active stock* being coincident with that portion of wealth that Ricardo defines as capital,—i.e., *all wealth that is at the time productively engaged*; and *dead stock* being that portion excluded by him and included by Mill—i.e., *all wealth destined eventually, but not immediately, to be employed in production*.³⁰

This more inclusive definition of capital, including the dichotomy of active and dead stock and the sharp distinction between the two, was crucial to Hawley's cycle theory as well as to his attack upon the wages-fund doctrine.³¹ While Hawley attributed recurrent crises and depressions to overaccumulation of capital, it was really the overaccumulation of "dead stock" rather than the employment of "active stock" which constituted the crisis-producing force. Acceptance of Ricardo's more restricted definition of capital as "active stock" only would, by definition, transform the overaccumulation theory into a simple general overproduction theory of crises contrary to the Say-Mill-Ricardo "law of markets." But contrary to Ricardo and Mill, who "assume that the amount of production depends upon the amount of capital," Hawley, consistent with this broader definition of capital, contended that production "is really dependent only on the amount of active stock."³² He proceeded to argue that, if uninterrupted by external force, the propensity to save operating in the institutional framework of the economic system would lead to the accumulation of capital in the form of "dead stock" more rapidly than technological progress and the discovery of profit opportunities could induce its flow into "active stock," until finally the volume of "dead stock" itself, through its effect upon profits, becomes a significant factor further reducing the flow into "active stock."³³ The accumulated savings in the form of "dead stock," according to Hawley, eventually grow so large that a crisis and depression

³⁰ *Ibid.*, p. 10 (italics mine).

³² *Ibid.*, p. 11.

³¹ *Ibid.*, pp. 10-11.

³³ *Ibid.*, p. 15.

result, during which, through consumption in excess of production, the excess "dead stock" (supply of commodities) is eliminated.

THE THREE MAJOR PARTS OF HAWLEY'S ARGUMENT

The analysis of Hawley's theory of cyclical fluctuations logically involves an examination of his reasoning on the following major points: (1) the factors affecting the accumulation or current supply of capital, (2) the factors affecting the demand for capital, and (3) the way in which an "excess" capital supply in the form of "dead stock" produced a crisis and depression. Let us consider these three in this order.

I. THE SUPPLY OF NEW CAPITAL

Throughout his analysis Hawley considered the supply of capital a function of several institutional factors rather than an increasing function of the interest rate alone.³⁴ The fundamental factor in saving, according to Hawley, was ability rather than will. He noted that the "regulation of accumulation, and the readjustment of capital when superabundant do not depend so much upon the will, as upon the ability."³⁵ While Hawley recognized that a decline in interest rates "has a tendency to check accumulation," he maintained that "interest is by no means the only inducement to save"³⁶ and argued that institutional factors are the principal determinants of the volume of saving.

Hawley pointed out that part of the stream of savings ("accumulation") results from efforts to insure against "poverty in our declining years," "a loss in earning power," or "unforeseen circumstances or to provide our children with a start in life" and admitted that such savings are "strengthened rather than weakened by a decline in the rate of interest."³⁷ More important, however, for cycle theory was his argument that "accumulation will ordinarily be large when production is great," for then "profits are high and savings are mainly made from profits."³⁸ As for saving as a function of the rate of change in the total income stream,

³⁴ *Enterprise*, pp. 143, 239-40.

³⁵ *Ibid.*, pp. 241-42.

³⁶ *Ibid.*, p. 239.

³⁷ *Ibid.*

³⁸ *Capital and Population*, p. 25.

Hawley argued significantly and with some force that expenditures for consumption lag behind increases in production. In *Capital and Population* Hawley said:

Increase of production is always attended by some increase of consumption; but the proportion between the two is much less disturbed by a gradual than by a sudden rise of prices. A sudden increase of income will yield a larger percentage for investment than a gradual one of equal extent. The more gradual it is, the closer will the increased expenditure approximate to the increased income, and, if it be very gradual, may almost or quite equal it.³⁹

In his work of 1907 he repeated the argument and suggested the reason:

The characteristic of savers, which is most important in this connection is this: that it is the habit of all consumers to keep pretty close to the standard of living they have once adopted. As men prosper their standard will be raised, but it will be raised gradually, except perhaps in cases of unexpected inheritance.⁴⁰

This clearly shows that Hawley acutely thought of the flow of savings as a function of the rate of change of total income. He further argued that the volume of saving and the tendency to overaccumulation were increased by the increase in profits from a cyclical price rise accentuated by credit expansion. Speaking of the effect of credit expansion upon prices, profits, and savings, Hawley, after pointing out that "any extension of credit . . . raises prices of all commodities," maintained that "any rise in prices is primarily and mainly a benefit to the capitalist" because he "possesses the commodity enhanced in value."⁴¹ As Hawley put it: "the effect of the credit system, when it commences to act upon a normal ratio of capital to population, is to stimulate prices and increase profits and to hasten the over-accumulations that are inevitably made from excessive profits."⁴² He also held that an inflationary rise in the general level of prices further increases savings because of the large increase in the size of some individual incomes. Here he said: "A rise in prices, instead of making small additions to many incomes, makes large additions to

³⁹ Pp. 91-92.

⁴¹ *Capital and Population*, pp. 85-86.

⁴⁰ *Enterprise*, pp. 240-41.

⁴² *Ibid.*

fewer incomes. The larger sudden additions to incomes are, the larger will be the proportion of them that will be invested, and the smaller will be the increase of expenditure."⁴³ The inequality of individual incomes occupied, however, an insignificant place in Hawley's theory of overaccumulation, even though he said, "that excessive inequality of fortune has the effect here attributed to it, is self-evident"⁴⁴ and frequently referred to "an undue proportion of the accumulating class."⁴⁵ The analysis of this point was not developed in detail, and his theory did not depend heavily upon it. Lastly, Hawley held that the volume of savings is partly a function of the variability of incomes. "In proportion to its average amount, the more variable and uncertain an income, the more, as a rule, will be saved from it in the long run, and it follows, therefore, that profit being much the more variable form of income, must yield the largest proportion for accumulation."⁴⁶ To summarize, Hawley argued that the accumulation of capital is primarily a function of (1) effort to accumulate reserves against future interruptions (decreases) of individual income streams, (2) the volume of and rate of change in the total income stream of the economy, (3) the shift to profit from an inflationary rise in general prices, and (4) the inequality and variability of incomes.

Acceptance of the capital supply as primarily a function of such institutional factors rather than as an increasing function of the interest rate alone definitely eliminated from Hawley's analysis the interest rate as an effective short-run regulating and equilibrating mechanism on the supply side.⁴⁷ Hawley was, therefore, in a position to argue that capital accumulation would not be checked short of a crisis by movements along, or shifts in the position of, the capital-demand curve, except in so far as such movements or shifts, by affecting individual incomes, affect ability to save.

⁴³ *Ibid.*, p. 86.

⁴⁴ "The Ratio of Capital to Consumption," *National Quarterly Review*, XXXIX (July, 1879), 113.

⁴⁵ *Capital and Population*, p. 93.

⁴⁶ *Enterprise*, p. 241.

⁴⁷ Such, of course, is the basic assumption of all oversaving theories of crises. Note particularly the discussion of this point by Raymond T. Bye, "The Process of Capital Formation and Its Relation to Inequality," *American Economic Review*, XXVI (December, 1936), 607

2. THE DEMAND FOR CAPITAL

Since the recurrent overaccumulation of capital relative to the effective demand for it is the central proposition in Hawley's cycle theory, let us turn from the forces on the supply side to the forces which Hawley designated as operating on the capital-demand side. On the side of demand for capital three major points are important in Hawley's analysis.

First, Hawley slipped into serious error in tacitly assuming the demand for capital so strictly limited by population that any appreciable increase in the quantity of capital per capita would produce a downward disequilibrium in the economic system.⁴⁸ This assumption as applied to long-run behavior has been effectively disproved historically by (1) the increasing ratio of capital to labor in the production of a given quantity of economic goods and services, (2) the increasing per capita consumption of goods and services in general, and (3) the increasing per capita demand for durable consumers' goods which involve the use of capital (savings). The error in the short run, as well as in the long run, consists in assuming a constant relationship between population and the demand for capital. But even so, this error in Hawley's analysis is more apparent than real, more a question of terminology than of thought. For fundamentally Hawley was stating—imperfectly and clumsily, to be sure, but certainly—what in the author's opinion is the primary contribution of the underconsumption theories to the solution of the business-cycle problem, namely, the accumulation of savings more rapidly than the discovery of natural resources and technical improvements provide opportunities for profitable investment under the actual downward flexibility of interest rates.⁴⁹ In an early article Hawley defined

⁴⁸ Note the title of his first book—*Capital and Population: A Study of the Economic Effects of Their Relations to Each Other*, also Hawley's statement in the above work of his central thesis: "That the tendency of *Capital to increase faster than population* is steady and constant, whenever and wherever men in their economic actions are undisturbed by abnormal events, is the central thought of this treatise, and is the contribution I bring to the science of political economy" (*Capital and Population*, p. 61, italics mine).

⁴⁹ Cf. E. F. M. Durbin, *Purchasing Power and Trade Depression* (rev. ed.; London: Jonathan Cape, 1934), pp. 81-102; Sumner H. Slichter, *Toward Stability: The Problem of Economic Balance* (New York: Henry Holt & Co., 1934), pp. 12-17.

the quantity of savings consistent with continuous equilibrium as the quantity of "capital needed to meet the growing needs of *increasing culture*."⁵⁰ In his work of 1907 he said that "the enterprisers' demand for capital, *in any given state of the arts and of population*, is strictly limited."⁵¹ Again, in his initial illustration of the overaccumulation of capital relative to the opportunity for profitable use, Hawley began with a closed economy stationary in "population and expenditure."⁵² Later in the same article, speaking of the causes which affect the ratio of capital to consumption, he listed (1) the creation of new wants and (2) the opening of new outlets for capital. This meager evidence and the implication of the third point discussed below indicate that Hawley most probably was thinking of the accumulation of capital in relation to the rate of profit opportunities from population growth and technical improvements and largely ignoring the downward flexibility of interest rates.

Second, Hawley apparently tacitly assumed that the over-all demand curve for capital is so inelastic from the top of the relevant range to the quantity axis that a large increase in the quantity of capital would force the interest rate to zero. Rejecting "the tacit assumption," which he held was generally made, that "the demand for capital would be unlimited if it were obtainable without interest charge," Hawley maintained that, "if enterprisers could borrow without paying interest, they could of course utilize an additional amount of capital to advantage, but would inevitably reach a position in which this would no longer be possible. . . ."⁵³

Third, Hawley laid down the important proposition, crucial to his analysis, that the demand for capital, i.e., the flow out of "dead stock" into "active stock," is a function of the rate of profit and argued that, once this profit rate on "active stock" declines below the "accustomed" rate, current capital demand drops to zero and additional savings accumulate in "dead stock." In *Capital and Population* he merely characterized the investment

⁵⁰ *Ratio of Capital to Consumption*, p. 102 (italics mine).

⁵¹ *Enterprise*, p. 219 (italics mine).

⁵² *Ratio of Capital to Consumption*, p. 102.

⁵³ *Enterprise*, p. 228.

limiting profit rate as "the accustomed profit."⁵⁴ Twenty-five years later in his *Enterprise and the Productive Process* he gave content to the term in relating it to his risk theory of profits. Implicitly applying the Wicksellian concept of "nominal" and "natural" interest rate to profits, Hawley said:

All our theory contends for is that if the *normal rate of profit* be established, as it will be, by the seriousness of the risks enterprisers believe to be involved, it is during the periods when the *rate obtainable is above the normal* that we enjoy industrial activity, and *when profits are depressed below the normal we suffer from industrial stagnation*.⁵⁵

The demand for capital, i.e., "active stock," is, according to Hawley, a function of the difference between the going profit rate and the rate which entrepreneurs believe necessary to cover the prevailing degree of risk. A decline of the profit below the rate demanded by the risk causes savings to accumulate in "dead stock." Accepting the proposition that "the rate of profit . . . depends upon the ratio of capital to the field of profitable investment," Hawley maintained that the rate of profit is itself an inverse function of the quantity of "dead stock," so that an accumulation of "dead stock" is itself a cause of its own further increase.⁵⁶ In this connection Hawley argued that "an increase in dead stock lowers profits, and a decrease of profits discourages the conversion of dead into active stock" and then concluded that "the amount of dead stock that will become active depends upon the amount of dead stock itself and varies inversely with it."⁵⁷ The difficulty producing the crisis arises not because savings are invested in fixed and circulating capital but because their owners "add them to *dead stock* and keep them inactive until the rate of profit tempts them to employ them productively."⁵⁸ Here it must be remembered that Hawley advanced, in the author's opinion, an erroneous argument but one that was crucial to his whole theory, namely, that savings not invested in "fixed capital" constituted a demand for accumulated things, or commodities.⁵⁹

⁵⁴ Cf. p. 80. This term was used by J. S. Mill.

⁵⁵ *Enterprise*, p. 144 (italics mine).

⁵⁶ *Ibid.*, p. 232.

⁵⁷ *Capital and Population*, pp. 14-15.

⁵⁸ *Ibid.*, p. 30 n. (italics mine).

⁵⁹ *Enterprise*, pp. 223, 242-43.

Since he held that the demand for savings takes the form of the "demand for commodities that shall not be sold," Hawley contended that the Say-Mill-Ricardo argument against the theoretical impossibility of a general glut breaks down. Against J. S. Mill's argument that savings are invested productively by their owners and hence create a stream of purchasing-power the same as if the savings are spent for consumption goods, Hawley said: "*That is just what they [the owners of savings] do not do . . . they add them to dead stock and keep them inactive until the rate of profit tempts them to employ them productively.*"⁶⁰

3. THE CRISIS AND CYCLICAL DECLINE

Let us turn now to the third major question, namely, how does an excess accumulation of capital produce a crisis and a cyclical decline? Here Hawley resorted to the general overproductionist argument concerning the effect of an oversupply of commodities upon the price structure and the profitability of capital instruments.

The illustration of a cistern receiving the inflowing stream of total production in which any inequality between saving and "active stock" is reflected in changes in "dead stock" composed of an aggregate of commodities, in connection with his argument that the demand for savings is the demand for commodities, makes intelligible Hawley's argument that the flow from "dead" into "active" stock is an inverse function of the former. The increased size of "dead stock," that is, the increase in the quantity of commodities, weakens the price structure, and the larger investment in commodities relative to a given or even lower volume of income reduces the profitability of carrying stocks of commodities, as well as the profits on investment in fixed-capital instruments.

Since the demand for capital, i.e., the flow into "active stock," for the construction and operation of specific capital instruments is determined by the income to be derived from such instruments and since this income is dependent upon the price and demand for the goods and services produced by capital goods, Hawley argued that a weakening of the price structure from an excess sup-

⁶⁰ *Capital and Population*, p. 30 n. (italics mine).

ply of commodities accumulated in "dead stock" curtails the demand for capital instruments and reduces construction of fixed capital because "manifestly investment in additional machinery will not be made when the product of the present machinery is unsaleable."⁶¹ The depressing effect upon prices and profits of excess "dead stock," according to Hawley, further restricts the flow into "active stock" and, assuming no change in the flow of savings, cumulatively piles up an overaccumulation of capital (over-supply of commodities) which leads to the crisis. The increase in the quantity of goods ("dead stock") in the hands of producers and merchants "forces a lowering of the general average of profit, and a consequent decrease in production." Relating the cyclical decline to the profit rate, Hawley pointed out that "*nothing is more certain than that people will cease producing as profits decline, and that they must so decline when capital increases faster than population.*"⁶²

The rapidity and violence of the turn at the peak of the cycle, according to Hawley, depends upon both the gradualness with which the excess accumulation is revealed and the state of confidence at the time. Sudden discovery of the situation or some unfavorable external force produces a sudden and violent readjustment.⁶³ The initial decline in prices and curtailment of production, particularly in a credit system subject to rapid loss of confidence, leads to a further cyclical decline.

In Hawley's analysis of the downside of the cycle three forces operate to stop the decline and bring recovery: (1) a reduction in saving, (2) consumption in excess of production, and (3) growth of population and investment opportunities. The depressing excess accumulation of capital is thus cleared away by negative savings, i.e., capital consumption, while the growth of population and investment opportunities combine to produce a "normal ratio of capital to population."⁶⁴

CONCLUSION

Although on careful analysis Hawley's theory reduces to a general oversaving or overproduction theory of cycles, his work

⁶¹ *Enterprise*, pp. 223-24, 234-35.

⁶³ *Enterprise*, pp. 234-35.

⁶² *Capital and Population*, p. 38.

⁶⁴ *Ibid.*, pp. 227-30 and 235.

contained several significant suggestions for business-cycle theory. First, Hawley, despite the weakness of his refuting arguments, pointed out that the explanation of crises and depressions in terms of capital scarcity by the classical economists in strict accordance with the wages-fund theory, particularly in the form stated by Price, lacked validity. His attack upon this theory of crises and depression along with his and other attacks upon the wages-fund doctrine was instrumental in liberating cycle theory from the dying wages-fund doctrine. Second, Hawley urged effectively that the volume and rate of saving not alone were increasing functions of the interest rate, but were mainly a function of various institutional factors, such as (1) the individual accumulation of reserves against risks, (2) the volume and rate of change in the total income stream, (3) the increase in profits during an inflationary price rise, and (4) the variability and inequality of individual incomes. Hence, in Hawley's view the rate of interest would not act as an effective equilibrating factor on the capital-supply side. Third, Hawley contended that the difficulty in the crisis and depression was not due to saving and investing but to saving and the failure to invest. His argument that individuals save things in the first instance was faulty, but he acutely argued that the crisis was due to the accumulation of savings in "dead stock" rather than investment in employment-creating fixed and working capital. The crucial difficulty, according to Hawley, was oversaving relative to investment. It was at this point that Hawley made two important suggestions for business-cycle theory. In the first place, consistent with his more famous "risk theory of profit," he argued that the investment of savings (capital accumulation) is a function of the anticipated rate of profit in relation to the rate which investors deem necessary in a given risk situation. If the actual and anticipated rate is too low relative to that which investors are willing to take in the given situation, the savings pile up in "dead stock," that is, they do not flow into "active stock" for the construction of capital instruments and for the employment of labor, but, to use a familiar phrase, "savings run to waste." In the second place, Hawley suggested, clumsily and largely implicitly but certainly, the principal contribution of

the oversaving and underconsumption theories of cycles—namely, that in the short run, because of institutional forces, savings accumulate more rapidly than the discovery of natural resources and technical improvements provide opportunities for the profitable investment of the savings under given downward flexibility of interest rates. Under these conditions savings pile up in hoards.

ACCUMULATION AND EXHAUSTION OF THE LOAN FUND
AS THE PRIMARY FORCE IN CYCLES

CYCLES DUE TO CHANGES IN CAPITAL SUPPLY

A different and in some respects a more significant analysis of changes in the capital fund as cause of cyclical changes in business activity was put forward by Charles A. Conant, first in 1897 and again in 1901, as the main part of his pluralistic and eclectic theory of self-generating business cycles.⁶⁵ Building upon the older theory stated by J. S. Mill that low interest rates and the supply of savings accumulated during the depression serve as powerful initiating and propelling forces for recovery, Conant proceeded to incorporate scarcity of investible capital at the peak of the cycle as the primary limiting and reversing factor, his analysis in this respect being similar to that of Tougan-Baronowsky.⁶⁶

It should be noted, however, that Conant did not attribute "substantially periodic" crises to the accumulation and exhaustion of capital alone but emphasized in addition other significant factors and, both explicitly and implicitly, included several minor causal forces. For example, he pointed out that crises "are intimately inter-woven with the structure of modern credit and the speculative tendencies of the human mind."⁶⁷ Also, in accepting the position that crises "are partly traceable to direct errors in the production and distribution of goods," i.e., the "miscalculations of producers," he depended largely upon the "error" theory

⁶⁵ *History of Modern Banks of Issue* (3d ed.; New York: G. P. Putnam's Sons, 1897); "Crises and Their Management," *Yale Review*, IX (February, 1901), 374-98.

⁶⁶ M. Tougan-Baronowsky, *Les Crises industrielles en Angleterre*, trans. Joseph Schapiro (Paris: Bibliothèque internationale d'économie politique, 1913), pp. 253-73.

⁶⁷ *Modern Banks of Issue*, p. 453; cf. also "Crises and Their Management," p. 380.

so frequently put forward in explanation of a maladjustment in the horizontal structure of production. The recurrent wave of errors in a single direction so basic in the explanation of maladjustments in the horizontal structure of production Conant attributed to imperfect information on the part of businessmen which prevent accurate forecasts for the time interval equal to the combined period of gestation and durability of capital goods in a world of dynamic changes in both supply and demand conditions.⁶⁸ Too, at one point Conant slipped into the general over-saving, underconsumption argument, while at another point he partially accepted the scarcity of capital theory of crises when he explained the pre-crisis prosperity exhaustion of capital as due in part to natural causes, wastes of war, and absorption and fixation of capital in specific durable capital equipment. Like Burton in 1902, he emphasized the "sinking of capital in unproductive enterprises" because of recurrent miscalculations of producers based upon imperfect information. These elements, however, were subordinated and related to his main theory, namely, that the principal force in cyclical fluctuations is the accumulation of idle savings during the cyclical decline and depression and their investment, waste, and consequent exhaustion during recovery and prosperity. As Conant put it: "One of the most serious of the disturbing causes which prevent the working of the mechanism of industry under the secure conditions of a static state is the growth of the loan fund. This fund is pouring into the money market every year a great amount of saved capital seeking investment."⁶⁹

This growth of the loan fund (capital supply) had, according to Conant, a threefold effect in producing cyclical changes in business activity. First, the accumulation of idle funds by "individuals and banks during a period of liquidation and depression" constitute a powerful upward cyclical initiating force.⁷⁰ In his words, "low rates and ample supplies of capital tempt borrowers, and industries develop into activity."⁷¹ Second, "the existence of

⁶⁸ "Crises and Their Management," pp. 376-79.

⁷⁰ *Ibid.*, p. 456.

⁶⁹ *Modern Banks of Issue*, p. 461.

⁷¹ *Ibid.*

credit and the great accumulation of loanable capital in modern society contributes to the capacity for overproduction and speculative enterprises."⁷² The accumulated capital provides the opportunity and the pressure of low interest rates furnishes a further powerful stimulus for speculative overexpansion in profitable sectors of the economy. Third, consumer expenditures in excess of current income out of the accumulated savings fund or consumer credit advanced by an elastic credit system, during recovery and prosperity when consumers plan "their mode of living upon the basis of future profits as well as within their actually increased earning," create a "fictitious demand" which must cease with the depletion of accumulated savings, the expansion of the elastic credit system to its limit, or the decision of consumers to cease drawing down their cash balances.⁷³

CHIEF ATTENTION TO UPPER TURNING-POINT

Although Conant was definitely thinking in terms of a whole business cycle rather than one or two phases, he did not divide the cycle into separate phases, and in his analysis he gave but brief consideration to any save the forces limiting and reversing the cycle at its peak.⁷⁴ On the question of upward initiating forces and the lower turning-point only two factors were emphasized, namely, "low [interest] rates and ample supplies of capital" and the sudden discovery of demand in excess of the supply of goods.⁷⁵ Speaking of the lower turning-point he said: "The markets have gradually become barren of commodities as the result of the arrest of production following the panic. The demand, which was less than supply, suddenly confronts a supply which is insufficient."⁷⁶ On the cost and supply of capital, consistent with the main part of his cycle theory, he pointed out that, when the fear of investors, following the panic, "has partially subsided, capital can be obtained at low rates" and that "low rates and ample supplies of capital tempt borrowers, and industries develop into activity."⁷⁷

⁷² "Crises and Their Management," p. 380.

⁷³ *Modern Banks of Issue*, p. 455.

⁷⁴ *Ibid.*, pp. 453-54, 460; cf. also "Crises and Their Management," p. 386.

⁷⁵ *Modern Banks of Issue*, pp. 454, 456.

⁷⁶ *Ibid.*, p. 454.

⁷⁷ *Ibid.*, p. 456.

While he noted that "the movement of revival is thus [from the increased purchasing-power received by producers from the initial increase in demand] diffused by degrees through the whole community," Conant did not analyze the cumulative upward, or, for that matter, the cumulative downward, movement. His principal concern was with the forces producing the maladjustments which limit and finally reverse the upward cyclical movement. Let us examine his analysis of these forces.

LIMITING AND REVERSING FORCES

Since, as previously noted, Conant's cycle theory emphasized as causal several variables other than the accumulation and exhaustion of the loan fund, he indicated that the check to prosperity might come from several sources. According to Conant, "the seeds of a [new] crisis are sown in three ways . . . in the production of merchandise, in the excessive consumption which apparent prosperity brings, and in the effect of production and consumption upon loanable capital."⁷⁸ More specifically, the check to prosperity was attributed to misdirected production, the waste and consumption of capital, and the absorption of the loan fund.

While capital scarcity was the most significant reversing factor in his theory in which misdirected production played an important role, Conant at one point erroneously slipped into the general oversaving, underconsumption argument from which he extricated himself immediately by shifting to misdirected production and the scarcity of capital argument that overinvestment in specific capital goods represents capital loss. Clearly stating the general overproduction argument, Conant said:

Over-production of consumable goods takes place because so large a part of the purchasing power of the community is saved for investment. A better equilibrium would be established between the production of finished goods and the demand for them if the community devoted a larger portion of its purchasing power to obtaining such goods.⁷⁹

Continuing, he said that "so large a part of the earnings of society has been set aside in recent years for investment that the equilib-

⁷⁸ *Ibid.*, p. 454.

⁷⁹ "Crises and Their Management," p. 381.

rium between the production of finished goods and the effective demand for them has been broken.”⁸⁰

Despite this clear general underconsumption argument and despite his quotation with apparent approval of Roscher’s argument that “the introduction of money breaks the direct contact between supply and demand” which exists in a barter economy, Conant hastened to say that “there cannot be such a thing as universal over-production” and quickly shifted his position to misdirected production.⁸¹ He argued that the Say-Mill-Ricardo “law of markets” failed “to produce a healthy equilibrium” as expected simply because “overproduction in anticipation of demand” failed to “take the right channels” because of the impossibility of forecasting on the basis of imperfect information.⁸² Conant then proceeded to tie misdirected production in with loss of capital and with his own theory of the exhaustion of capital at the peak. On this point he noted that capital invested in “needless duplication” of productive capacity fails to “add to the sum of the exchange values.”⁸³ More precisely, the investment of capital in excessive productive capacity fails to provide its owners with a stream of purchasing-power with which to take from the market goods produced by other productive capacity; hence there is “over-production in respect to effective demand.”⁸⁴ The relation of misdirected production to the loss and waste of capital was clearly emphasized in a number of places.⁸⁵

As another important force limiting or reversing the upward movement, Conant acutely argued that consumer expenditures in excess of current incomes, from the reduction of cash balances and credit expansion during revival and prosperity, set up a rate of expansion which could not continue after the adjustment of consumer expenditures to or below current income. This “fictitious demand” thus misled producers into the creation of productive capacity which would become excessive at cost prices once

⁸⁰ *Ibid.*

⁸² *Ibid.*, pp. 382-83.

⁸¹ *Ibid.*, p. 382.

⁸³ *Ibid.*, p. 383.

⁸⁴ *Modern Banks*, pp. 462-63, 509-11.

⁸⁵ “Crises and Their Management,” p. 383; cf. *Modern Banks of Issue*, p. 461.

consumers decide to spend only out of current income, that is, cease to draw down (or decide to rebuild) cash balances or cease to borrow (or reduce the volume of consumer debts).⁸⁶ After a period of living "beyond their incomes," during which they "consume the product of other people's labor and their own savings," Conant said: "The business community wake[s] up to the fact that they have consumed the savings of past years, that production to meet this fictitious demand must cease, and even a normal and healthful demand must be curtailed while society is repairing its shattered forces."⁸⁷ As for the limiting and reversing effects of the reduction of luxury expenditures, Conant noted that "the suspension of production which supplied these people with luxuries would in itself diminish the present demand for labor and change the course of industrial development."⁸⁸ The argument was clear that adjustment of consumer expenditures to current income levels reduces the demand for luxury goods, and the consequent slowing-down of the rate or stoppage of that demand would change the cyclical direction of business activity. Despite the fact that the argument was not developed in great detail, Conant certainly held that expenditures out of savings and expansion of credit during the recovery and prosperity phases of the cycle set up a rate of expansion in business activity which could not be maintained once the savings of consumers were exhausted and consumer credit ceased to expand.

EXHAUSTION OF THE CAPITAL FUND

The waste of capital through investment in unproductive enterprises and the dissipation of savings through consumer expenditures in excess of current income so reduce the real capital of the economy in a period of prosperity that finally a point is reached where, according to Conant, "there is no adequate capital left to employ labor or continue the old scale of expenditure."⁸⁹ Thus, natural loss of capital, wastes of war, excessive consumption, misdirected production, and even general overproduction are,

⁸⁶ *Modern Banks of Issue*, pp. 455-56.

⁸⁸ *Ibid.*

⁸⁷ *Ibid.*, p. 456.

⁸⁹ *Ibid.*, p. 455.

through their effect upon the capital fund and short-run fluctuations in the stream of purchasing-power, related to changes in, or really exhaustion of, the loan fund, which, in Conant's analysis, was the principal reversing force at the peak of the cycle.⁹⁰

Despite the incomplete presentation and the confusion of ideas, the most significant part of Conant's cycle theory was his argument, similar in many respects to that presented three years earlier in Russian by Tougan-Baranowsky, that the exhaustion of the loan fund, through its limiting influence upon investment in new enterprises, was the most powerful reversing force at the peak of the cycle. As Conant put it: "It is when the loan fund and the supply of saved capital seeking investment have been largely absorbed, that the check thereby imposed upon further ventures brings on a crisis."⁹¹

There is, however, throughout Conant's analysis a disturbing failure to distinguish clearly and sharply between real capital, the accumulation of cash balances, and the creation of purchasing-power by the banking system. When considering the effect of war expenditures, "luxuriant living," and the investment of capital in unproductive enterprises upon the loss of capital, "which makes the community so poor" and reduces the "means of employing labor," Conant was plainly concerned with real capital. But in the passage above and in the discussion immediately following Conant was concerned primarily with the monetary demand for securities, money savings, the cash-reserve position of the banking system as affected by the expansion and contraction of loans, domestic cash withdrawals, and international gold flows.

Limitations of the upward cyclical movement from domestic and international drains on bank reserves was, of course, not new but had been clearly stated by writers on money, banking, and international trade at the beginning of the nineteenth century.⁹² However, it is to Conant's credit that he incorporated it as an

⁹⁰ *Ibid.*, pp. 454, 460-64, 509.

⁹¹ "Crises and Their Management," p. 385.

⁹² Cf. Jacob Viner, *Studies in the Theory of International Trade* (New York: Harper & Bros., 1937), pp. 290-302.

essential part of his analysis. Since in his first study Conant was primarily concerned with banks, it was perhaps but natural that he should emphasize savings in the form of cash balances and cash reserves of the banking system in the cyclical process. It is unfortunate that, because of his failure to distinguish between cash reserves, savings in the form of cash balances, and real capital, this previously developed analysis is so mixed with the other analysis of the limitations of the upward cyclical movement in terms of the exhaustion of the accumulated capital fund that it results in confusion and vacillation between the two. Despite the two conceptions of capital and the somewhat clumsy presentation of his cycle theory, Conant's explanation of the upper turning-point rests ultimately upon the lack of savings in the later stages of the boom to continue operations at the prosperity rate.

CONCLUSION

Conant's principal contribution to cycle theory was really his synthesis of theories and his analysis of the multiplicity of processes involved in cyclical fluctuations. However, in his analysis of the accumulation and exhaustion of savings in the cyclical process three points are important. First, he built upon the older idea, stated by J. S. Mill in 1848, that the accumulation of savings during the downswing and the resulting low interest rates in the late stage of depression act as powerful recovery forces, and to this idea he added the theory that accumulated savings and the extension of credit lead to speculation and overexpansion in favored lines of industry during the upswing. Second, Conant apparently made a contribution to cycle theory in pointing out that consumer expenditures out of accumulated savings and credit advances by an elastic credit system in excess of current incomes during the recovery and prosperity period set up a rate of expansion during the upswing which could not be continued after the adjustment of consumer expenditures to or below current income when savings are exhausted, the elastic credit system approaches an expansion limit, or consumers decide to rebuild cash balances. The slowing-down of the rate of demand would reverse the upward cyclical movement. Third, Conant held that the ex-

haustion of the loan fund was the principal limiting and reversing force at the upper turning-point, but he failed to distinguish clearly between real savings, savings in the form of cash balances, and the availability of bank credit. To the extent that he was concerned with the limitation of the upward movement through the exhaustion of bank reserves by domestic and international specie drains, the analysis was not new but had been carefully developed in the early part of the nineteenth century. On the other hand, his conception that the exhaustion of savings at the upper turning-point prevents the continuation of the prosperity rate of operation appears to have permanent value in the explanation of certain cycles.

CHAPTER IV

CYCLE THEORIES BASED ON TECHNICAL PROGRESS AND CAPITAL CONSTRUCTION

INTRODUCTION

THE three cycles theories examined in this chapter are but loosely related to one another, but these, also, like the theories in the last chapter, explained the crisis and depression largely in terms of an oversupply of capital. However, between the theories just examined and those here considered there is a significant point of difference. The theories examined in the last chapter attributed the crisis-producing superabundance of capital to lack of balance between consumption and saving and investing; while the three theories here assign the oversupply of capital either (1) to rapid technical progress or (2) to the collective miscalculations of entrepreneurs in estimating the short-run requirements for capital equipment. Two prominent American writers, namely, David A. Wells and Thorstein B. Veblen, attributed crises and depressions primarily to rapid technical improvements. The miscalculations of entrepreneurs (errors of forecasting) with reference to the demand and supply of capital equipment was the principal motivating force in the theoretical explanation of general overproduction advanced by George B. Dixwell.

WELLS'S OVERPRODUCTION THEORY OF CRISES AND DEPRESSIONS

OVERPRODUCTION DUE TO TECHNICAL IMPROVEMENTS

In a series of articles in the *Contemporary Review* and the *Popular Science Monthly* later revised and published under the title *Recent Economic Changes*, David A. Wells argued that general overproduction defined as a supply "in excess of any demand at remunerative prices to the producer" was the crucial phenomenon

of recurring, but more or less chronic, crises and depressions.¹ In this work Wells was concerned primarily with the length and severity of the long or, as he argued, chronic depressions and long price declines from 1873 to 1889 and offered but brief analysis of the shorter business cycle. Hence, only brief attention is here given to his work.

Accepting the theory of general overproduction, Wells blamed the crisis-producing overproduction upon the rapid increase of the total production of economic goods from increased output per unit of productive resources resulting from rapid improvements in production and marketing technique and the discovery of economic resources more rapid than effective demand increased, which he held was limited by the "increase in tastes and intelligence of the masses."²

In support of his theory of overproduction Wells presented an impressive array of historical evidence of technical improvements in the production and distribution of goods and of discoveries of resources which he argued were the principal cause of the depression and the long price declines in several important lines of industry.³ His attempted proof of general overproduction was untenable for two reasons. First, granted that the historical and statistical evidence presented by Wells was adequate to prove overproduction in each industry considered, he would have proved only misdirected and not general overproduction. Granting the adequacy of his evidence, it alone would have shown only that production failed to conform to the same channels as consumer demand. Second, Wells's evidence was not adequate to prove overproduction even in a single industry. Historical records of

¹ "The Great Depression of Trade," *Contemporary Review*, LIX (1887), 275-93, 381-400; "Economic Disturbances since 1873," *Popular Science Monthly*, XXXI (July-October, 1887), 289-304, 433-51, 578-97, 768-93; XXXII (November, 1888), 1-17; "Changes in the Relative Values of the Precious Metals," *ibid.*, XXXII (December, 1888), 170-88; "Governmental Interference with Production and Distribution," *ibid.*, January, 1888, pp. 289-311; "The Economic Outlook—Present and Prospective," *ibid.*, February-March, 1888, pp. 455-73 and 577-96; XXXIII (May, 1888), 1-37; *Recent Economic Changes* (New York: D. Appleton & Co., 1889).

² *Recent Economic Changes*, pp. 76-77.

³ *Ibid.*, pp. 125-26.

discoveries of resources and technological improvements plus statistical data on absolute or relative expansion in the volume of production accompanied by a decline in prices do not prove that overproduction exists in a given industry. Palpably the price decline may have resulted from lower per unit cost, which lower cost is in turn the resultant of an increasing volume in a decreasing-cost industry or of technical cost-reducing methods. The rising volume of sales at a lower price may well be the result of movements along a given demand curve consequent upon lower price, i.e., shifts of the supply curves to the right as the result of technical improvements and shifts of the demand curve itself through time. Losses or below-normal profits would be necessary to prove overproduction in the industry.

In an effort to prove overproduction Wells presented two other arguments. At one point, assuming optimistic error similar to the psychological theories, Wells argued that imperfect knowledge plus the desire for profits leads to overexpansion on the part of individual producers and thus to cyclical overproduction.⁴ He also put forward the argument, previously stated by Crocker, that the financial burden of idle machinery causes the owners of that machinery, wealthy individuals and large corporations, to continue to operate it even though demand prices do not cover costs.⁵ Admittedly, financial tenacity supported by a strong surplus and by a monopolistic position, as well as by the durability of capital goods, may be a significant factor in the rapidity and depth of a cyclical price decline, as well as the length of the subsequent depression, and consequently a necessary part of any complete cycle theory; but it is not admissible as an explanation of general overproduction since it obviously assumes excess productive capacity at the upper turning-point as a point of departure.

Wells's emphasis on overproduction resulting from rapid technological changes and the durability of capital goods combined with optimistic and speculative expansion of productive capacity with the consequent intense competition for markets led him to state earlier, in almost identical terms, Veblen's famous conclu-

⁴ *Ibid.*, p. 73.

⁵ *Ibid.* Cf. above, pp. 26-31.

sion, namely, that under the fully developed machine economy depressions "may become chronic" and recovery and prosperity the exception.⁶

THE SHORT CYCLE

In addition to his analysis of the long price declines and long depressions Wells also presented a brief analysis of the short cycle in which he argued that after a period of speculative expansion of productive capacity and a time of general technological improvement in production and distribution "the period at length arrives when the industrial and commercial world awakens to the fact that there is a product disproportionate to any current remunerative demand."⁷ This discovery forces down prices with the resultant decline in profits, driving marginal producers and those "working on insufficient capital" to liquidate stocks of goods which, in turn, drives prices still lower. Finally the stronger firms join the parade of liquidation "until gradually the industrial system becomes depressed and demoralized, and the weaker succumb (fail) with a greater or less destruction of capital and waste of product."⁸ Excess productive capacity and consumable goods, Wells argued, would be reduced and finally eliminated during the depression through the withdrawal of productive capacity, through the failure of producers, through the greater relative curtailment of production than consumption, and through the growth of population. Eventually "recovery slowly commences" when this process has proceeded to the point where "the industrial and commercial world again suddenly realizes that the condition of affairs has been reversed, and that now the supply has become unequal to [less than] demand."⁹ At this stage, owners of stocks and productive capacity "realize large profits which tempt others to rush into production."¹⁰ Thus the upward cyclical movement is stimulated, and "the old experience of inflation and reaction is again and again repeated."¹¹

⁶ *Ibid.*, p. 74. Veblen was greatly influenced both by the evidence of technical change presented by Wells and very probably by this early statement of the chronic nature of depressions.

⁷ *Ibid.*, pp. 80-81; see p. 105 for Wells's discussion of an inflationary cycle.

⁸ *Ibid.*, p. 80.

⁹ *Ibid.*, p. 81.

¹⁰ *Ibid.*, p. 80.

¹¹ *Ibid.*

VEBLÉN'S EARLY ANALYSIS OF THE CYCLE

CRISES DUE TO DIVERGENT VALUATIONS OF CAPITAL EQUIPMENT

In the course of his criticism of Crocker's general overproduction theory of crises in 1892, Veblen argued that the truth in the popular overproduction theory was to be found in the periodic maladjustment and the necessary readjustment of the "accepted nominal value" and the "actual present value" of income-producing property.¹² The recurrent divergence between "the accepted nominal value of property, based on its past capitalization, and its actual present value, indicated by its present earnings capacity, or the present cost of replacing it," Veblen attributed to speculative activity, to progressive cost-reducing technological improvements in capital equipment more rapid than that anticipated by the purchasers of such equipment at the time of purchase, and a decline in the interest rate.¹³ Despite his rejection of Crocker's theory, Veblen argued that overproduction was a very real thing.

While the doctrine of a general over-supply of goods in the sense in which it has been criticized in economic theory—is palpably absurd, it must be admitted that the cry of "overproduction" that goes up at every season of industrial depression has a very cogent though perhaps not a very articulate meaning to the men who raise the cry.¹⁴

Veblen employed the term "overproduction" to "describe a situation where goods have been produced in excess of the demand *at such prices as will afford the customary profit on the capital employed in their production.*"¹⁵ Although the concept was somewhat vague, Veblen defined "customary profit" as that which the "business community accepts as the proper or adequate rate of profit for the time being," and he was careful to point out that in the pre-crisis period this "ordinary" or "customary" rate is somewhat in excess of "the rate of profit on new investments as indicated by the rate of interest on money seeking investment."¹⁶ Briefly, in Veblen's view, the "precise difficulty" in a crisis "is that a

¹² Thorstein B. Veblen, "The Over-Production Fallacy," *Quarterly Journal of Economics*, VI (July, 1892), 484-92.

¹³ *Ibid.*, p. 490.

¹⁴ *Ibid.*, p. 488.

¹⁵ *Ibid.*, p. 489 (italics mine).

¹⁶ *Ibid.*, p. 489.

divergence has taken place between the accepted nominal value of property, based on its past capitalization and its present earning capacity or the present cost of replacing it," or, in terms of profit, the "customary profit" and the rate of return on new money seeking investment.

This recurrent crisis-producing divergence between the "accepted nominal" and present "actual" value of income-producing property Veblen attributed to three main causes, namely, (1) speculative activity which in the face of the relative inelasticity of the short-run supply of particular capital equipment bids the capitalized value of existing capital equipment above historical or reproduction cost, (2) progressive cost reduction from technological improvements, and (3) the accumulation of the capital fund which progressively lowers the rate of interest.¹⁷

Although the divergence of "nominal" and "actual" capital values might be carried to the crisis-producing point as effectively and perhaps more rapidly by a speculative rise in "nominal" values, in this early discussion of crises Veblen omitted any analysis of speculation. Here he confined his attention to "increased efficiency of industry" and argued that the development of new and improved plants with lower unit costs prevent the older concerns from selling their products at prices high enough to yield sufficient net earnings to provide the "customary profit" on the "accepted nominal value" of old capital equipment.¹⁸ Veblen's argument on this point involved the implicit assumption of a rate of technical improvements more rapid than the rate anticipated by the purchasers of capital equipment at the time of purchase. Palpably, the crisis-producing force could not be cost-reducing technological improvements per se but, instead, a rate of technical change greater than that anticipated by entrepreneurs when computing the rate and cost of obsolescence for estimating future income and expenses of capital equipment upon which the purchasing decision rests. Hence, in contending that technological progress tended regularly to create a discrepancy in the "accepted" and "actual" value of capital equipment, Veblen implicitly as-

¹⁷ *Ibid.*, pp. 489-90.

¹⁸ *Ibid.*, pp. 490-91.

sumed that purchasers of such equipment either ignored the effect of future technical changes or else consistently underestimated the rate of such change.

The movement of the general level of prices—or its reciprocal, the value of money—was related by Veblen to technical progress as a cause of crises and depressions. Implicitly accepting a commodity theory of money, Veblen suggested that the recurrent divergence in capital values is partly the result of a relative increase in the value of money.¹⁹ The argument was not developed, but the implicit argument appears to be that the cost of money (and therefore its value) fails to decline *pari passu* with cost of other goods and services; hence, prices of the latter decline more than is justified by technical cost reduction alone. A general price decline from the monetary side is thus superimposed upon the price decline resulting from improving technology. Although the details are not etched in—really no more than barely suggested—the general argument depended upon the effect of declining prices on profits with the resultant decline in the current capitalized value of income-producing property.

EMPHASIS ON FINANCIAL ASPECTS OF THE CYCLE

Veblen emphasized the financial and psychological aspects of a crisis and depression and minimized the effect upon real income (production). He argued that “the whole matter [of a crisis and depression] is very largely a matter of price,” principally of income-producing property, and contended that “an industrial depression is mainly a readjustment of values” and “the shifting of ownership rather than the destruction of wealth or a serious reduction of the aggregate productiveness of industry as measured in goods.”²⁰ The discrepancy between the “accepted” and “actual” value of capital instruments Veblen thought was sufficiently powerful to produce a crisis and depression. The violence and magnitude of the readjustment results from the fact that while

¹⁹ *Ibid.*, p. 491.

²⁰ *Ibid.* Veblen’s phrase “productiveness of industry” obviously must be interpreted as “potential productiveness” or “productive capacity” rather than as current production of goods, unless, of course, Veblen’s analysis is limited to disturbances in the financial markets unaccompanied by a cyclical downturn in industry.

property-owners recognize the divergence in capital values they submit to the readjustment "reluctantly and tardily." A large part of the difficulty in the cyclical decline arises from trading on the equity, because the decline in property values consequent on the adjustment of "*accepted* valuation and the *actual* value of capital" is concentrated upon the owner's equity and in a great number of cases produces failure and financial reorganization. Veblen did not, however, work out the cumulative cyclical decline from the initial financial readjustments.

In this early brief analysis of crises and depressions Veblen ascribed these phenomena to changes in the value of capital goods and changes in profits of an individual business enterprise due to speculation, variation in the interest rate, changes in the value of money, and technological progress. Changes in the position of the entrepreneur and the individual business enterprise constituted the core of his adumbrated analysis of 1892; but it was not until 1904 that Veblen followed up this approach and expanded it into the theory of fluctuating business profits resulting from time lags in the cost-price structure.²¹

MISCALCULATIONS AND FLUCTUATIONS IN CAPITAL EQUIPMENT

One of the most penetrating analyses of recurring maladjustments in the vertical structure of production was briefly presented by George B. Dixwell largely as a digression in two short articles published in 1881 and 1882.²² Practically excluding the problem of the lower turning-point and the period of revival, Dixwell's discussion was limited, probably because of its by-product nature, almost entirely to an explanation of prosperity, the upper turning-point, and the cumulative decline. Cyclical fluctuations, or alternate prosperous and depressed periods, according to Dixwell, result primarily from fluctuations in the construction of capital equipment, which fluctuations are in turn due to the miscalcula-

²¹ Veblen, *The Theory of Business Enterprise* (New York: G. Scribner's Sons, 1904), pp. 178-245.

²² George Basil Dixwell, *The Premises of Free Trade Examined* (Cambridge: John Wilson & Son, 1881). Pp. 36. Reprinted from the *Bulletin of the National Association of Wool Manufacturers*; "*Progress and Poverty*": *A Review of the Doctrines of Henry George* (Cambridge: John Wilson & Son, 1882). Pp. 42.

tion of entrepreneurs in estimating the short-run supply and demand for such equipment. Dixwell argued that the rather generalized cyclical overexpansion of capital equipment, characteristic of the pre-crisis stage of the cycle, resulted primarily from "imperfect information and consequent imperfect judgment of individuals."²³ In his view the fluctuations in demand for consumers' goods and services observed through the cycle resulted primarily from variations in the flow of monetary purchasing-power, which is itself a direct function of investment in the capital goods industries.

THE POSSIBILITY OF A GENERAL GLUT

For two reasons, one wholly erroneous and the other greatly confused, Dixwell rejected the Say-Mill-Ricardo doctrine stated by Cairnes concerning the impossibility of a general glut. First, like Crocker and Hawley, Dixwell argued that the classical analysis was confined to the exchange of consumption goods and services; hence their argument was invalidated by the exclusion of all forms of capital goods. Second, he charged that Mill and Cairnes erroneously defined value as a ratio, and thus they logically concluded that it is "absurd to say that all values can rise or fall together." Dixwell attacked this conclusion through their definition of value and argued instead that the total "exchangeable value" of commodities may rise or fall through time. Though Dixwell nowhere precisely defined "exchangeable value," it was fundamental to his position that total "exchangeable value" rise or fall *pari passu* with an increase or decrease of the total quantity of physical goods and services; consequently, the most probable meaning of the term is simply money value, i.e., price per unit times number of units.²⁴ On the basis of his own definition of value Dixwell argued that, because the total "exchangeable value" of commodities does rise and fall through the cycle, the Mill-Cairnes "reasoning breaks down."²⁵ Dixwell's principal

²³ "Progress and Poverty," p. 13.

²⁴ This interpretation is supported by such statements as: "... the values which the money power has constantly to measure . . ." (*The Premises of Free Trade Examined*, p. 7).

²⁵ *Ibid.*, p. 7.

criticism of the Mill-Cairnes theory concerning the impossibility of a general glut, however, was his contention that it failed to recognize the desire for and the necessity of exchanging capital goods but was confined to consumers' goods and services only. This erroneous argument is similar to the demand for income-producing equipment argument stressed by Crocker and put forward in a slightly different sense by Hawley. It is fair to conclude that Dixwell's attack upon the Say-Mill-Cairnes argument concerning the impossibility of a general glut was weak and confused, but his analysis of the cyclical overproduction of capital equipment contained several suggestive points for business-cycle theory. Let us turn now to his own analysis.

THE UPWARD MOVEMENT

An upward cyclical movement may be initiated, according to Dixwell, by the opening of a "market which has been for some time closed" but principally by the discovery of a shortage of capital equipment.²⁶ In his language the depression ends when "it begins to be apparent that more fixed capital is needed" and when "many possessors of property yielding an income arrive at the conclusion that the country has outgrown its fixed capital."²⁷ The upward initiating deficiency of capital equipment results from a prior underestimate of capital requirements. In his analysis Dixwell either computed by some unexplained method or assumed a compound rate of increase in capital requirements of 3 per cent per year. "The population," he said, "and its effective demand for capital increases at the rate of three per cent annually."²⁸ The construction of capital equipment at a lower rate would lead to a deficiency which would eventually start an upward cyclical movement, and the construction of capital equipment at a higher rate for a period of years would create an oversupply and result in a collapse of the cyclical upswing and a period of depression. The recurring deficiency of capital equipment

²⁶ *"Progress and Poverty,"* pp. 13-14 and 18.

²⁷ *The Premises of Free Trade Examined,* pp. 8, 14.

²⁸ *"Progress and Poverty,"* p. 14.

which accumulates in a depression constituted the principal upward cyclical initiating force in Dixwell's theory.

It was, however, in connection with the cumulative effect of the construction of capital equipment in the early stages of the cyclical upswing that Dixwell's analysis was most suggestive. On the initial increase in the construction of capital goods Dixwell said: "... This movement will involve the fuller employment of the community, *a consequent diminution in the stocks of commodities, and an advance in their exchangeable value.*"²⁹ Here several important elements of business-cycle theory were suggested, though they were not carefully developed. Apparently Dixwell sensed, even if he did not state it clearly, that increasing construction of capital equipment in an economy with fully employed resources involved a shift of resources from consumers' goods industries to capital goods industries with a consequent reduction in the flow of consumers' goods; or if, as is more likely, capital expansion occurs in an economy with idle productive resources, these idle resources are employed more rapidly in capital than in consumers' goods industries, with a relative reduction in the production of consumers' goods as compared with the production of capital goods. More important in Dixwell's analysis, however, is the time interval in the construction of capital goods. The increased flow of monetary purchasing-power paid for the productive resources during the period of gestation, according to Dixwell, raises the monetary demand for consumers' goods, and this fact, combined with the absolute or relative decline in the production of consumers' goods, raises either absolutely or relatively, or both, the prices of consumers' goods. In brief, the short-run cyclical increase in monetary purchasing-power during a period of expansion of capital goods is more rapid than the short-run increase in the flow of consumption goods and services. Hence the prices of consumable commodities rise relative to the price of capital goods. This higher price for consumption goods and services increases the profitability of capital equipment and further stimulates the construction of capital goods. As Dixwell put it:

²⁹ *The Premises of Free Trade Examined*, p. 8 (italics mine).

"Each onward step causes a larger and larger demand and stimulates more and more to an increased production by making the earlier enterprises profitable. . . ." ³⁰ Thus Dixwell clearly saw the cumulative effect in the upward cyclical movement of price interrelationships and the greater rate of change in effective monetary demand than in the production of consumption goods and services during the period of gestation.

THE UPPER TURNING-POINT AND DECLINE

The upper turning-point received little attention in Dixwell's analysis. The cumulative upward movement, according to Dixwell, comes to a sudden halt when "it suddenly reveals itself to the community that more fixed capital has been formed than can for the time being be profitably used." ³¹ Elsewhere he simply noted that the upward movement would continue "until the formation of instruments of production and convenience is carried beyond the point where society can and will pay for their use enough to satisfy the desire for profit current in the community." ³²

The cumulative cyclical decline following a reduction or stoppage of capital construction in response to the discovery of an excess capital supply was briefly analyzed by Dixwell, but here he offered the usual analysis. An observed glut is the immediate result of a sharp reduction in employment and hence in the effective purchasing-power. As Dixwell put it: "Now, suddenly the movement to form more improved frames, more mills, forges, machinery, etc., is diminished and the labor which was forming them set adrift and is unable to consume as large as before. . . ." ³³ Again on the same point:

The productive energies, which had adapted themselves to meet the effective demand of a fully employed community, find themselves in excess in presence of the diminished demand of a community only partially employed. There is over-production or under-consumption and as a necessary consequence, the exchangeable value of the whole annual product suffers a great diminution. ³⁴

³⁰ *Ibid.*

³² "Progress and Poverty," p. 14.

³¹ *Ibid.*

³³ *Ibid.*

³⁴ *The Premises of Free Trade Examined*, pp. 8-9.

The initial downturn produces cumulative downward repercussions in the financial community. Debtors cannot pay their obligations, and "there are failures, panic, forced liquidations." The cumulative destruction of purchasing-power, according to Dixwell, is given a new impetus because capitalists—the owners of fixed capital—are forced, in turn, to curtail their consumption expenditures.³⁵

Although this account of the cumulative cyclical decline offers nothing new, it is significant that the decline, as well as the period of recovery and prosperity, was explained directly in terms of fluctuation in the volume of construction of capital goods. Business is good or bad according to whether or not businessmen create a flow of consumer purchasing-power through expenditures on the construction of capital goods.

It is interesting to note that, consistent with his theory that cyclical fluctuations in the economy are essentially fluctuations in the construction of capital goods, Dixwell suggested that "some considerable mitigation [of cyclical fluctuations] might be afforded if, *during times of excitement*, the general and state and city and village governments abstained, as far as possible, from expenditures for improvements, and reserved their means for times of depression."³⁶

DIXWELL'S CONTRIBUTION

Appraisal of Dixwell's brief analysis of business cycles reveals three important points. First, he was obviously thinking of self-generating cycles in which one phase of the cycle generated the conditions which produced the succeeding phase. Second, he explained cyclical fluctuations in general business activity in terms of changes in the volume of investment in capital goods. Prosperity, according to Dixwell, was simply a period during which the construction of fixed capital goods exceeded the average growth rate, which he estimated to be 3 per cent per year; depression was, conversely, a period during which construction fell below this rate because too much capital equipment had been constructed in the preceding prosperity period. In his analysis fluctuation in

³⁵ *Ibid.*, p. 9.

³⁶ "Progress and Poverty," p. 18.

the demand for consumers' goods and services was simply the result of variations in the flow of monetary purchasing-power, which, in turn, was a direct function of the volume of investment in the capital goods industries. A third contribution of Dixwell to cycle theory was his brief analysis of the cumulative effect during the upswing of an initial increase in the volume of investment, which he stated in terms of the time lag, equal to the period of gestation, between capital expenditures and the augmented flow of consumption goods and services from the completed capital equipment. The increased flow of monetary purchasing-power as construction of capital equipment gets under way produces an absolute or relative rise in the price of consumers' goods, and increases still further the profitability of capital equipment and hence its construction. As previously stated, many details of the argument were not worked out, but nowhere else in the American literature from 1860 to 1900 was this essential element of cycle theory so definitely stated.

CHAPTER V

ERROR THEORIES IN TERMS OF THE MECHANISM OF PRODUCTION AND EXCHANGE

THE discussion in this chapter is concerned with the two theories of prosperity, crisis, and depression put forward by J. B. Clark and Francis A. Walker. The theories advanced by these writers have two things in common. First, each maintained that the difficulty at the upper turning-point of the cycle was due to misdirected production or partial overproduction. Second, this recurring partial overproduction was attributed to various characteristics of the existing system of production and exchange in which errors of forecast played a large role.

J. B. CLARK'S THEORY OF THE CYCLE

THE ARGUMENT AGAINST GENERAL OVERPRODUCTION

One of the ablest brief arguments against the general overproduction theory of crises was presented by John Bates Clark in his "Introduction" to the English translation of Rodbertus' *Overproduction and Crises*.¹ Noting "that universal overproduction is impossible has been considered nearly axiomatic," Clark contended that while an "*unsaleable* surplus of *many* things can be produced, overproduction is practically misdirected production."² Clark rejected in particular the overproduction theories of both von Kirchman and Rodbertus because, based upon the socialist theory of distribution and being variants of the surplus-value theory of Marx, they were contrary to his own famous productivity theory of distribution. Against all oversaving, production theories of crises in general Clark directed two arguments. First, he held that an enlarged income and an increasing production of that income distributed to the capitalist group need not necessarily lead to an increased volume of savings but theoretical-

¹ Trans. Julia Franklin (London: Swan Sonnenschein & Co., Ltd., 1898; New York: Charles Scribner's Sons, 1898), pp. 1-18.

² *Ibid.*, p. 3.

ly might be, and historically had been, spent for higher-quality goods and luxuries.³ Apparently, Clark considered expenditure for higher-quality goods and services necessary to prevent overproduction. Second, Clark argued that any thinkable division of the income stream between spending and saving, however long continued, was consistent with continued equilibrium of the economic system. On this point he said: "The key to the solution lies in recognizing the unquestionable fact that saving is in reality demanding and getting productive instruments as part of an income."⁴ Of the savers and the saving process Clark said: "It means that they determine to take in the form of additions to their productive plants" not only their current savings, "but the entire future products created by those additional plants themselves."⁵ As Clark put it: "They would build mills that should make more mills forever."⁶ The validity of Clark's reasoning here is dependent upon two unstated assumptions. First, the continued demand for productive equipment must be known and accurately anticipated as to distribution among the various lines of industry, otherwise construction of productive equipment will lead to misdirected production. Second, Clark must assume either that technological improvements and changes in processes provide profit opportunities as rapidly as capital accumulates in order to provide opportunity for increased investment of capital per unit of goods produced or that interest rates are perfectly flexible downward in response to capital accumulation.⁷

CLARK'S OWN THEORY

Regarding the impossibility of general overproduction as practically axiomatic, Clark accepted "misdirected production," defined as "a relative excess of some things" or of "an unsaleable

³ *Ibid.*, p. 15.⁴ *Ibid.*, p. 14.⁵ *Ibid.*, p. 13.⁶ *Ibid.*, p. 15.

⁷ To the extent that discoveries and technical improvements fail to keep pace with the rate of capital accumulation, and hence provide opportunities for investment in cost-reducing capital equipment, or the rate of interest falls enough to make investment in existing equipment profitable enough to absorb the increased fund of savings, the savings either will remain idle in hoards or be invested in proportionate duplication of like capital units.

surplus of *many* things" as the "real phenomenon" of depressions.⁸ Then he reasoned that, "if we can detect the actual cause of this misuse of productive energy [misdirected production], we shall go far toward attaining a true philosophy of crises."⁹ While recognizing that the "phenomenon [of a crisis] is complex, and a statement that accurately accounts for it must be so," Clark held that "something has misled business men" into misdirected production, which, he says, "is doubtless something that falls under the term speculation" or some "fatuous discounting of the future."¹⁰ He argued specifically that "it is the relation of the present to the future—in speculative and inaccurate estimates of incomes that are about to be—that there lie influences that cause goods to be created for which, in time, there is not an effectual demand."¹¹ Clark claimed that producers possess all the information required for accurate forecasts and that the competitive struggle forces them accurately to forecast consumer demand as a necessary condition for remaining in business. Hence he absolved producers and held consumers responsible for the errors which lead to misdirected production. "Speculation, delusions about the future, and fictitious incomes in the present may bewilder consumers, and, through them, may misdirect producers."¹² Again he said:

Future values have been anticipated; men have thought they saw amounts of wealth coming to them that appeared ample. . . . Orders for large amounts of consumers' wealth have been given, and the mills have been set running in order to meet them. The goods have come into existence, but the wealth that was seen in a vision of the future has not materialized.¹³

Thus "consumers' " delusions about future income result in producers' blunders, creating misdirected production or "production which does not cater to normal and permanent wants."¹⁴ Apparently, the only errors of producers, according to Clark, lay in their failure to distinguish between real and fictitious consumer demand.

⁸ *Ibid.*, pp. 1-3.

⁹ *Ibid.*, p. 4.

¹⁰ *Ibid.*, pp. 1-5, *passim*.

¹¹ *Ibid.*, p. 17.

¹² *Ibid.*, p. 9.

¹³ *Ibid.*, pp. 4-5.

¹⁴ *Ibid.*, pp. 2, 5.

In the final analysis Clark's incomplete theory of cycles depended upon recurring periods characterized by a majority of optimistic and positive errors in consumer estimates of future incomes. He failed, however, to offer any satisfactory explanation for recurring waves in consumer illusions. Clark also failed to offer any analysis of the process by which misdirected production—partial disequilibrium—produces the general disequilibrium characteristic of a cyclical decline and depression. More important, despite Clark's specific rejection of general overproduction and his repeated statement that the difficulty in the crisis is misdirected production, his own contention that the pre-crisis stage is characterized by a volume of production based on an overestimate of anticipated consumer income reduces in fact to general overproduction in the only sense in which this term has any meaning. Nowhere did Clark argue, or even suggest, that the miscalculations and errors of consumers result in the giving of orders for particular streams of consumption goods and services different from the later actual division of the spending of their income. Instead, he argued that consumers as a group give orders for a total quantity of goods greater than their future incomes will buy at cost prices.

FRANCIS A. WALKER'S THEORY OF CYCLES

CHARACTERISTICS OF THE SYSTEM RESPONSIBLE FOR MISDIRECTED PRODUCTION

The analysis of cyclical fluctuations in terms of certain characteristic features of the economic system was carried forward by Francis A. Walker, who in 1879 and subsequent years formulated the theory, which he restated with little modification in all his later works, that crises and depressions result directly from misdirected production which he attributed, contrary to Clark, to the inevitable miscalculations of producers in the modern economic system.

Specifically rejecting general overproduction as the explanation of crises and depression, Walker held that "overproduction in certain lines" was, however, "a condition towards which industry is continually tending, and from which it has often to extricate

itself. . . .'¹⁵ Walker stated the case for disproportionate or mis-directed production as follows:

Production may through the force of speculative impulses, especially when improvements and inventions are multiplying fast, or when bad money enters to generate illusions and to work injustice in contracts between man and man, become so perverted from its proper course, so distorted from its true proportions, that the amount of certain sorts of wealth may be increased far beyond what the community requires of them, the total production being no greater than it is. This is what is called over-production. It is not, however, general over-production, but only over-production in certain lines. . . . Over-production existing in a few lines, under-consumption of the articles so produced in disproportion necessarily results. The market for these is glutted; production is checked, and inasmuch as the capital and labor engaged cannot readily, if at all, be transferred to other branches of industry, they remain wholly or partially unemployed, and the general production of the community is in so far diminished.¹⁶

Walker maintained that, under the organization of economic life then existing, crises and depression were "inevitable." On this point Walker said:

. . . Under the conditions depicted in the first part of this chapter [summarized below], it is inevitable, the constitution of the human mind remaining unchanged, that the producing and exchanging body should alternate frequently and even violently between the state of depression and of partially suspended activity, and a state of highly animated, excited, almost convulsive exertion, in which the agencies alike of production and of exchange are strained to their utmost to meet demands which are stimulated to the highest extravagance by a universal passion of speculation.¹⁷

It was a firm belief of Walker that alternate prosperity and depression were inevitable under the "existing organization" of economic life.¹⁸

What were the chief characteristics of the economic system which Walker considered responsible for cycles? Although he did not enumerate them in this order, his analysis depended at various points upon the following characteristics of the system.¹⁹

¹⁵ *Money in Its Relation to Trade and Industry* (New York: Henry Holt & Co., 1889), pp. 117, 121. Date of Preface (p. iv), April 15, 1879.

¹⁶ *Ibid.*, pp. 121-22.

¹⁷ *Political Economy* (3d ed., rev.; New York: Henry Holt & Co., 1888), p. 177.

¹⁸ "The Relation of Changes in the Volume of the Currency to Prosperity," *Economic Studies* (American Economic Association), I, 43.

¹⁹ *Political Economy*, pp. 185-86.

1. The time element in the production process is represented on the one end by the period of gestation and on the other end by the durability of concrete capital goods.
2. Supply at a given moment is the net resultant of prior decisions of numerous producers acting independently.
3. The information upon which these independent producers base their decisions is incomplete and frequently misleading.
4. The interrelations and high degree of interdependence in the economic system lead to cumulative advances and declines.
5. The elastic credit system.
6. The propensity to speculate.

In Walker's analysis of the business cycle five main elements were important. First, the adjustment of supply to demand in all lines was impossible in view of the above-enumerated characteristics of the interdependent system which is producing highly diversified and specialized goods for a large market in anticipation of demand by means of costly and complicated machinery and immobile resources. Second, he emphasized external forces, changes in technical processes, and shifts in consumer demand as important forces preventing the constant and smooth adjustment of supply to demand in all lines of goods through time. Third, accurate forecasts of the distribution of consumer demand is impossible for the combined period of gestation and the life of the productive capacity. Fourth, different commodities represent different degrees of responsiveness to changes in the total income stream of the economy. Fifth, the economy is characterized by a propensity to speculate. In the face of these conditions it is impossible for producers accurately to forecast demand. Misdirected production inevitably results.

ANALYSIS LIMITED TO UPPER TURNING-POINT AND DECLINE

Walker's analysis was concerned almost entirely with the upper and lower turning-points and the cumulative decline. Although acutely aware of the several phases of the cycle, as evidenced by a quotation in his later work of Lord Overstone's classic description of the cycle, a quotation relative to the cyclical upswing from Alfred Marshall's earliest analysis of the problem, and by frequent scattered references throughout his works to the high degree of activity during prosperity, Walker failed to give any detailed analysis or explanation of the period of prosperity.

As noted below, he offered no convincing analysis of the lower turning-point. Apparently, Walker considered some previous underestimate of demand, an external force creating favorable profit opportunities in some lines of industry, or a more hopeful attitude on the part of businessmen generally as sufficient to initiate an upward cyclical movement. Once under way the cumulative forces of credit, speculation, and optimistic error, because of imperfect information, push the movement to disproportionate production in the favored lines.

THE UPPER TURNING-POINT

Walker's analysis of the cycle really started with the peak of prosperity. His explanation of the upper turning-point involved (1) the scarcity of capital, (2) excess (unsalable) stocks, and (3) external forces.

First, in his earliest statement (1877) Walker accepted as a partial explanation of panics and depressions a variant of the Mill-Price theory that these phenomena are due to a maladjustment in the "proportion existing between fixed and circulating capital" as a result of "speculative investments"; and, consistent with that theory, he held that only "industry and frugality" could recoup the capital wasted in excess investments.²⁰ The turn from prosperity to depression comes, according to this theory, from a reduction of the volume of production because of the lack of circulating capital for setting labor and fixed capital in motion.

Second, consistent with the partial overproduction theory, Walker believed that the excess of unsalable commodities in the overexpanded lines reversed the direction of business activity at the peak.

Over-production existing in a few lines, under-consumption of the articles so produced in disproportion necessarily results. The market for these is glutted; production is checked, and inasmuch as the capital and labor engaged can not readily, if at all, be transferred to other branches of industry, they remain wholly or partially unemployed, and the general production of the community is so far diminished.²¹

²⁰ *Money* (New York: Henry Holt & Co., 1891), pp. 473-74 (reprint of the 1877 ed.).

²¹ *Money in Its Relation to Trade and Industry*, p. 122.

Third, Walker pointed out that the reversal of the cycle at the upper turning-point might be caused by the impact of some external force.

Suppose, now, this intricate organization of the producing body to have been carried to its limits, as a result of a long continued period of prosperity, . . . when a disaster, industrial or financial in origin, befalls the community. . . . [Such a force] temporarily diminishes the productive power of the community as a whole [and] the consumption of articles least essential to comfort and decency is in a degree checked.²²

THE CUMULATIVE DECLINE

Once the upward cyclical movement is arrested, Walker held that a cumulative cyclical decline is set in motion. This decline he attributed to three factors: (1) the cumulative passing-back through the system of an initial reduction in income, (2) the cumulative adjustment of speculative inventory positions as initial reductions in demand are passed successively through the system from consumer to ultimate producer, and (3) the perverse elasticity of the credit system.

In explanation and support of his contention that a cumulative cyclical decline is produced by passing back through the economic system an initial income reduction Walker divided all commodities into twenty-six groups according to the degree of downward shift in their respective demand curves in response to a decrease in the current income stream of the economy.²³

If we suppose the thousands of articles known to the market to form twenty-six groups, A to Z, the importance to human welfare diminishing from the head of the alphabet to the foot, we may assume that the first effect of the calamity we have supposed to take place [a reduction of income] will fall upon the consumption of articles in groups X, Y, and Z.²⁴

Walker then argued that an initial reduction in income, affecting in the first instance products X, Y, and Z, will spread cumulative-

²² *Ibid.*, p. 126.

²³ Walker, of course, did not use the device or terminology of demand curves. This terminology is used in this discussion simply for convenience.

²⁴ *Money in Its Relation to Trade and Industry*, pp. 126-27. The phrase "importance to human welfare" is actually used by Walker in the sense of responsiveness of the demand curve to downward changes in the current income stream of the economy.

ly to other products, further reducing the total production of the economy. As the "demand for the products of the trades furnishing these articles [X, Y, Z] falls off rapidly," the laborers in these trades suffer unemployment and wage reductions, and with their income thus reduced they are forced to "cut-off their consumption of all articles except those of prime importance, say from A to M."²⁵ This, according to Walker, "involves a reduced demand for the products from N to W," and this in turn forces "each group of producers in this part of the alphabet . . . to curtail still further their consumption of articles X, Y, and Z, . . . while producers from S to W begin to diminish their use of articles below T." Since "this effect," he argued, "at once becomes the cause of new effects," the reduction of demand cumulatively spreads through the groups of commodities "so the movement goes forward until even the favored producers A to D experience some reduction in the demand for their products."²⁶

An initial reduction in the income stream of the economy or a severe shock to the system which Walker contemplated theoretically may, and realistically does, produce a cumulative cyclical decline. But critical examination of Walker's explanation of the cumulative decline up to this point shows that it alone does not explain why the decline should be cumulative or why it should include a greater number of commodities with each circular flow of income. Given an initial reduction in the income stream of the economy, for purposes of illustration, of 10 per cent concentrated in the first instance upon the demand for commodities X, Y, and Z, it does not follow from differences in elasticities of demand for particular commodities alone that this initial change in income will produce a cumulative income reduction of 20-30 per cent. Differences in elasticities of demand are not sufficient to convert initial changes in income flow into a cumulative decline. Such a classification of commodities as employed by Walker is helpful in indicating where a reduction in demand falls when for any reason people decide to reduce their expenditures, but it does not constitute any reason for a cumulative decline. Something more is

²⁵ *Ibid.*, p. 127.

²⁶ *Ibid.*, pp. 127-28.

needed to explain the cumulative decline, such, for example, as a shift to cash balances (hoarding) induced by fear of further income reductions, price declines which create losses and force liquidation, financial failures which touch off a chain of failures and thus start the perverse elasticity of the credit and banking system, or the cumulative adjustment of inventory positions.

It was the last—namely, successive inventory adjustments vertically through the interdependent system of production and exchange—which Walker considered primarily responsible for the cumulative cyclical decline.²⁷ If the initial reduction of income or the shock to the economic system occurs in ordinary times, Walker argues that merchants and manufacturers tend to minimize it and fail to reduce purchases and production as much as the initial diminution in demand; but, if the shock or reduction in income falls on an “apprehensive mood” or an already disturbed economy, producers will curtail purchases and production more than the initial reduction in demand.

The merchant feels the demand for goods fall sharply off. He fears there is more to come. He is determined not to be caught with a large stock on his hands, and *in his orders to the manufacturer he exaggerates the natural and proper effect of the changes in the market. He orders even less than the present condition of things might justify. The manufacturer, on his part, knows nothing of the actual falling off in demand; he only knows it as it comes to him heightened by the apprehension of the merchant. In his turn, he exaggerates the evil and reduces his production more than proportionally.*²⁸

This successive adjustment of inventory position and production exaggerated by pessimism but started by an initial reduction in demand at the upper turning-point Walker adroitly and creditably tied in with income flows and worked out the effect in terms of his classification of commodities according to the responsiveness of their demand curves to diminutions in the total income stream, and in doing so he gave one of the clearest analyses yet published of the cumulative cyclical decline in terms of the industrial process. Consistent with his classification of commodities, Walker assumed that the first diminution of demand falls upon the manufacturers of product Z, and he stated the cumula-

²⁷ *Ibid.*, pp. 129-30.

²⁸ *Ibid.*, p. 130 (italics mine).

tive interaction of curtailed production, reduced income flow, and further reduction in production as follows:

As he [the manufacturer of product Z] pays less wages, his workmen have less to spend for the products of other branches of industry. The merchants in these lines, feeling the falling off in demand, *exaggerate* it in their orders to the manufacturers, especially X and Y. *These, apprehensive of worse to come, curtail their operations more than correspondingly; and so the movement proceeds with increasing force.*²⁹

The cumulative force of speculative unloading of stocks and commodities was not new with Walker; his contribution lay in explaining the cumulative decline on the industrial side in terms of speculative and necessary inventory adjustments through the vertical interdependent system of production and exchange and in working out the effect of the cumulative inventory adjustments in terms of the correlative changes in production, monetary income flow, and effective demand. It is theoretically possible, of course, to explain cumulative expansion and contraction of output in the upward and downward movements of the cycle in terms of inventory changes based on fluctuations in sales and orders without any optimistic or pessimistic amplifications of the changes in the demand situation, simply by assuming a constant ratio, or anything less than a reciprocal change in the ratio, of inventory to sales. Under these conditions a change in sales will be accompanied by a positive correlative change in the physical volume of inventory; production would increase or decrease more than the increase or decrease of sales; and, on the assumption of an elastic money and credit system and in the absence of an exact inverse change in per unit factor cost, money incomes will change in the same direction as sales. This change in money income, in the absence of shifts in hoarding equal to the changes in money income, leads to a further change in demand in the same direction, hence the movement progresses cumulatively. While it is thus possible to explain cumulative expansion and contraction in the economic system in the above terms, in the author's opinion any realistic explanation of the upward and downward cyclical movements must recognize that inventory adjustments are fre-

²⁹ *Ibid.*, p. 131 (italics mine).

quently exaggerated by optimism and pessimism in anticipation of future changes in demand. Walker's contribution to cycle theory was in including optimistic and pessimistic speculative inventory adjustments as an essential element in the explanation of the cumulative upward and downward movement on the industrial side rather than attributing the cumulative character of cyclical movements to the speculative loading and unloading of stocks and commodities in the speculative markets and to the expansion and contraction of the money and credit system alone. In this process Walker creditably tied inventory adjustment in with correlative changes in production, income flow, and effective demand.

THE LOWER TURNING-POINT AND RECOVERY

The vicious downward spiral might continue until the "aggregate production" was reduced "to two-thirds of its former amount" or it "might even proceed till one-half the labor power and capital of the community were for the time neutralized";³⁰ but Walker argued that the downward movement would be arrested near the two-thirds level by the limiting forces of absolutely necessary consumption. He said: "The staple industries and especially those producing the absolute necessities of life, will never be suspended. The demand for their products is so constant and certain that panic can have no great power over them."³¹ It was Walker's position that the production of "articles essential to comfort and social decency" would provide an income to their producers with which to purchase "products of groups further down the list" and thus arrest the vicious downward spiral somewhere around two-thirds of potential productive capacity.

It is obvious that such an analysis of the limiting factors on the downside involves a shift from the conception of total effective demand as a function of the total income stream, which is itself a function of the volume of production, which production is largely a function of the apprehensive reduction of inventory, to a conception of effective demand as a function of need for the more essential economic goods. It is probably true that intense demand as measured by willingness to make exceptional sacrifice for cer-

³⁰ *Ibid.*, pp. 131-32.

³¹ *Ibid.*, pp. 132-33.

tain economic goods essential for a minimum standard of living acts as a powerful limiting force in the downward cyclical movement. But any analysis which depends upon this as a limiting force—and Walker's is no exception—should show how intensely desired or necessary consumption changes the monetary stream available for the purchase of essential goods either because individuals or governmental agencies are willing to spend for themselves or others in excess of current income by drawing down cash balances or borrowing or else because the existence of such a body of demand influences producers' estimates, the volume of production, and thus the size of the current income stream itself available for the purchase of goods. Yet Walker made no attempt to tie the demand for "necessary consumption" as a limiting force in with income flows.

In Walker's opinion the downward movement need not necessarily lead immediately and automatically to revival, but industry might operate for an indefinite period at depressed levels. "Practically," he said, "it is liable to be terminated after a longer or shorter period of suspense, by *reviving courage*, and enterprise on the part of men of affairs, or *through the stimulus to production administered from, it may be, some unexpected quarter*."³² The rapidity of the cyclical revival, according to Walker, "will depend much on the natural temper of the community, much on the immediate cause provoking renewed enterprise, much on accident."³³ Whatever be the initial and fundamental cause of revival, Walker believed that "the one essential condition is that speculation be initiated—that is, that men begin to look ahead, to anticipate demand, and to discount the future."³⁴

As previously noted, Walker offered no detailed analysis of the upward movement of the cycle but he did point out the cumulative effect of income flows from production in excess of current demand for inventory in anticipation of larger future demand.

One man begins to produce no longer on orders, no longer cautiously and fearfully as if it were too much to believe that his goods will be taken off his hands, but in a more sanguine spirit, assuming the initiative in pro-

³² *Ibid.*, p. 133.

³³ *Ibid.*

³⁴ *Ibid.*

duction, and boldly encountering its risks. Producing more largely, his workmen have more to offer for the products of other industries, which is of itself a reason for larger production in these branches, whose managers and proprietors respond in the same spirit. Finding the demand increasing, they act as if they believed it was about to increase still further. They produce somewhat in anticipation, and thus give their hands more to offer in exchange for the production of still other industries, and so on the movement proceeds, gathering force as it goes, and production swells continually under the contagious influence of hope and courage, just as before it shrank and shrivelled under the breath of fear and panic.³⁵

Just as the cumulative cyclical decline was made to depend upon the pessimistic exaggeration of the decrease in demand reflected in downward adjustments of inventory positions vertically through the system, so here it is suggested that the cumulative cyclical revival depends upon upward adjustments in inventory positions as businessmen take a more optimistic view of the future.

CONCLUSION

Walker omitted from his analysis of the cumulative cyclical contraction and expansion many significant and essential factors, such as the "acceleration principle," the interaction of changes in money and credit on prices, etc., but he must be credited with having presented the clearest analysis, in the American literature from 1860 to 1900 at least, of the cumulative cyclical expansion and contraction in terms of the industrial process through exaggerated inventory adjustments vertically through the system of production and exchange based upon estimates of demand by successive entrepreneurs.

Several significant points of similarity between the theory of business cycles advanced by Walker and Marshall and a long quotation in his later works from *Economics of Industry* by Marshall and Paley may lead to the belief on the part of some that Walker took his theory directly from Marshall. The independence of Walker's work is strongly suggested by two facts. First, Walker's initial statement of his theory was given in a series of lectures delivered at the Lowell Institute of Boston in 1879, the same year in

³⁵ *Ibid.*, pp. 133-34.

which Marshall's first published statement on the problem appeared.³⁶ This early statement of Walker's theory of cycles reappeared in successive editions and later works substantially unaltered; in fact, except for a few minor changes in language and the insertion of a long descriptive quotation of the cyclical process from Marshall, the later statements were identical. Second, the fact that in his first work Walker made no reference to Marshall but in later works quoted him is some evidence of the independence of Walker's work, since he was apparently careful at all times to give reference to the source of his principal ideas.

³⁶ Alfred Marshall and Mary Paley, *Economics of Industry* (London: Macmillan & Co., Ltd., 1879).

CHAPTER VI

MONETARY THEORIES OF THE BUSINESS CYCLE

CLASSIFICATION OF MONETARY THEORIES OF THE BUSINESS CYCLE

PRACTICALLY all theoretical explanations of crises, depressions, and prosperities depend in varying degrees upon the operation of a money and credit system. This difference in the degree of dependence of cycle theories upon a money economy plus the correlative fact that most writers in the United States from 1860 to 1900 formulated pluralistic rather than monistic explanations of cyclical fluctuations means, of course, that the differentiation here made between monetary and non-monetary theories of the business cycle is based primarily upon the degree of emphasis given monetary factors. For the purposes of this essay monetary theories of the business cycle are roughly defined as those which designate some aspect of the money and credit system as the primary cause of cyclical movement.¹ These monetary theories of crises, depressions, and the business cycle all accept the central proposition that the most important forces determining the cyclical volume of business activity come immediately from the money and credit system.² One type of these monetary theories of the cycle designate deliberate or autonomous variations in the cost or effective supply of money as the only, or at least chief, motivating cause of alternating periods of prosperity and depression. Another type of monetary theory of the business cycle designates the existing sensitive money and credit system as the principal economic mechanism responsible for amplifying and cumulating external impinging forces into wide cyclical swings in business activity. The nonmonetary theories of cyclical fluctuations, though in most cases either explicitly or implicitly

¹ R. F. Harrod, *The Trade Cycle* (London: Oxford University Press, 1936), p. 46.

² F. A. Hayek, *Prices and Production* (London: George Routledge & Sons, Ltd., 1931), p. 1.

assuming an elastic money and credit system, assign to monetary factors and the operation of the monetary mechanism a purely passive role. The differences between the monetary and the non-monetary explanations of the business cycle or parts of it presented by American writers from 1860 to 1900 is largely, however, one of the degree of emphasis on monetary causes.

Monetary theories of cyclical changes in business activity received more widespread consideration by writers in the United States from 1860 to 1900 than any other single group of theories. This was perhaps the logical result of approximately forty years of monetary controversy over the issue, redemption, and withdrawal of the greenbacks and the place of silver in the monetary system extending from the issue of the first greenbacks in 1863 to the passage of the Currency Act of 1900. The several American monetary theories of crises, depressions, and business cycles from 1860 to 1900 fall into two broad groups.

I. Inflation and deflation theories

1. Monetary policy as the determinant of changes in business activity
2. Crises and depressions attributed to the explosive and cumulative character of the money and credit system
3. Cycles due to expansion and contraction of an elastic money and credit system

II. Cycle theories in terms of monetary changes and sticky prices

The major part of this chapter is concerned with the works of three important writers in Group II, namely, Simon Newcomb, Irving Fisher, and J. Allen Smith. Since the writers in Group I offered little that was new or important for business-cycle theory, their views are considered but briefly below.

PART I

INFLATION AND DEFLATION THEORIES

CRISES AND DEPRESSIONS DUE TO MONETARY POLICY

The writings of this first group, larger in volume than that of any other, consisted largely of superficial explanations of only a part of the business cycle, principally financial panics, crises, and particularly the long depressions, which explanations were formu-

lated or restated under the impetus of the greenback and silver controversy from the end of the Civil War to 1900. Several writers in this first group, particularly the greenback and silver advocates, accepting a crude version of the quantity theory of money, explained crises and depressions in terms of the reduction of the volume of money. The argument pieced together from the comments of several writers was roughly as follows:

1. Reduction in the volume of money leads to a decline in the price level.³
2. Falling prices reduce the level of business activity for one or more of the following reasons:
 - a) Hoarding, induced by the initial decline in prices, produces a further reduction in the volume of money and thus a further decline in the price level;⁴
 - b) Reduction in profit margins resulting from the time interval between costs and receipts eliminates or reduces the incentive to invest and thus reduces the volume of investment. The sticky-price analysis was implicit in the argument but not stated;⁵
 - c) Falling prices raise the real interest rate and the real debt burden with a consequent decline in the volume of business.⁶

Contrary to the foregoing writers, the so-called "sound" money advocates (those favoring resumption of specie payments and the gold standard) argued that monetary uncertainty respecting the future value of money exerted a depressing effect upon the volume of investment and thus upon the volume of business activity. Specifically, these writers pointed out that the probability that Congress might issue additional greenbacks or place in circulation such an aggregate amount of silver under the Bland-Allison or Sherman Silver Purchase acts as to jeopardize the maintenance of

³ *Majority Report of the Monetary Commission of 1876* (Washington: Government Printing Office, 1877), pp. 15, 36-37, 51.

⁴ *Ibid.*, pp. 53, 57-58; see also *Proceedings of the International Monetary Conference* (Cincinnati: Robert Clarke & Co., 1881), p. 312.

⁵ Francis A. Walker, *The Relations of Changes in the Volume of Money to Prosperity* ("American Economic Association Economic Studies," No. I [1892]), pp. 41-43; George M. Weston, *The Silver Question* (New York: I. S. Homans, 1878), pp. 144-45.

⁶ Horace F. Bartine, *Minority Report on Coinage of Gold and Silver, submitted February 28, 1891, by the Committee on Coinage, Weights and Measure*, pp. 10-11; George Rutledge Gibson, "The Financial Excitement and Its Causes," *Forum*, XV (March-August, 1893), 487.

the gold standard or, in any event, depreciate the value of money greatly increased the reluctance of investors to run the risk of repayment in the depreciated currency and thus produced a decline in investment and in business activity.⁷

The two principal types of theoretical explanations of the effect of monetary changes upon the level of business activity growing out of the greenback and silver controversies—one in terms of a declining price level in response to a decrease in the volume of money and the other in terms of monetary uncertainty—constituted only partial explanations of certain types of declines in business. Both of these types of theories were offered not to explain the whole cycle but only the crisis and depression viewed largely as an exception to prosperity which many considered the normal condition of business. Most of these writers entirely neglected velocity of circulation and variously limited the volume of money itself to metallic money or coin plus paper money, according as the argument was advanced in support of silver or greenbacks or both; or else their argument proceeded upon the tacit assumption of a constant relationship between the money base and the substitutes for money. It is a safe conclusion that little of the material presented by the writers in this first subgroup was of any real significance for business-cycle theory. Most of their writings consisted of rather poor statements of monetary and cycle theory formulated before 1860.

CYCLICAL DECLINES LAID TO THE UNSTABLE AND CUMULATIVE
CHARACTER OF THE MONEY AND CREDIT SYSTEM

A number of writers in the United States from 1860 to 1900 attributed crises and depressions primarily to the explosive and downward cumulative character of the existing independent fractional reserve money and banking system. Among this group Kitson, Clewes, Ferris, Davis, and Davenport argued with consider-

⁷ W. L. Trenholm, *The People's Money* (New York: Charles Scribner's Sons, 1896), p. 85; Francis Bowen, *Minority Report of Monetary Commission of 1876* (Washington: Government Printing Office, 1877), pp. 155-56; A. H. Simonin, *Resumption of Specie Payments* (New York: American News Co., 1868), p. 18; George E. Roberts, *Money, Wages, and Prices* (Chicago: National Money League, 1897), pp. 63-64.

able variation that the small cash reserve relative to the volume of currency and credit erected upon it in an interdependent multiple banking system made the system particularly susceptible to shock at the peak of the boom and that once a downward movement sets in it is converted into a cumulative one by the money and banking system.

Although he slipped into serious errors in implicitly assuming a constant relation between the volume of money and credit, on the one hand, and the volume of production, on the other, Kitson attributed crises and cumulative cyclical declines to the susceptibility to shock of a partial reserve banking system.⁸ Accepting the proposition that changes in the volume of money and credit cause prosperity and depression and noting that in the existing money and credit system gold constitutes only a small fraction of the circulating medium, Kitson argued that a money and banking system which could pay but 5 per cent of its obligations in gold, collapses in the face of a "run" created by public fear and rumors of bank failures.⁹

The establishment of a definite legal reserve ratio for banks under the national banking system without any provisions for relaxing the requirements or permitting the use of the reserves during periods of financial strain, Henry Clewes argued, created restrictions which actually increased the danger of crises, once the reserve limit is approached, and the magnitude of the cyclical decline, once it is under way.¹⁰ Ferris pointed out that the existing system of mixed coin and bank paper money based on fractional reserves made it necessary for the banks in times of strain to call loans and discounts, drive down the price of investments, and ruin their customers.¹¹ Suggestive of the 100 per cent money idea,

⁸ Arthur Kitson, "Finance and Its Influence upon Industrial Progress," a lecture delivered before the Franklin Institute, Philadelphia, November 22, 1895, *American Magazine of Civics*, VIII (1896), Part I, pp. 420-30; Part II, pp. 469-83.

⁹ *Ibid.*, pp. 429-30; cf. Theodore Gilman, *Testimony before the Committee on Banking and Currency of the House of Representatives* (54th Cong., 1st and 2d sess. [1896-97]) (Washington: Government Printing Office, 1897), pp. 97-99.

¹⁰ *Wall Street Point of View* (New York: Selves, Burdett & Co., 1900), p. 69.

¹¹ John Alexander Ferris, *The Financial Economy of the United States Illustrated* (San Francisco: A. Roman & Co., 1867), p. 27.

though stemming more directly from the "currency principle" and the Louisiana banking practice prior to the Civil War, Robert M Davis, a New Orleans banker, argued that panics would be mitigated or even eliminated if banks were forced to operate with "actual capital" instead of being allowed to make loans out of created deposits or fractionally covered note issues.¹² If banks were required to hold cash equal to both circulation and deposits, in Davis' opinion, panics would not occur.

Describing the partial reserve money and credit system as a "cone resting on its vertex," Davenport in 1899 characterized it as the "sheerest card-house" and added that "no fire-trap could be more skillfully planned for purposes of destruction."¹³ The elastic credit system, according to Davenport, permits an expansion in the volume of credit (effective circulating medium) equal to or greater than the volume of business (transactions), and this expansion of expenditures in a given direction without a corresponding reduction of expenditures in other directions constitutes a powerful force preventing the operation of the equilibrium forces in a period of business expansion. The "card-house" nature of the money and credit system, Davenport held, made it especially susceptible to shock at the peak of a boom, which it translates into a cumulative decline.

The cumulative cyclical decline following an initial disturbance in production and exchange was worked out briefly by Harry Ager in terms of reductions in demand, price declines, pressure for payment, and curtailment of credit.¹⁴ William Knapp went so far as to argue that the panic of 1893 was due to an agreement among bankers to refuse new and to call outstanding loans in order to force the repeal of the Sherman Silver Purchase Act of 1890.¹⁵

¹² *Public and Private Credit and Banking and Their Abuses* (New Orleans: L. Graham & Co., 1869), p. 44.

¹³ H. J. Davenport, *Outlines of Economic Theory* (New York: Macmillan & Co., 1899), pp. 273-79, *passim*; cf. William Brough, *Open Mints and Free Coinage* (New York: G. P. Putnam's Sons, 1898), pp. 127-29.

¹⁴ "Causes of the Present Business Depression," *American Journal of Politics*, IV (January-June, 1894), 237-38.

¹⁵ "An Artificial Panic in Retrospect," *American Journal of Politics*, IV (January-June, 1894), 656-66.

Bolles, also, considered the reduction of bank loans to be the proximate cause of the panic and cyclical decline and argued that every major panic in England and the United States had been produced by the banks. However, he held that such action by the bankers could hardly be accepted as completely arbitrary or as an ultimate cause but was itself largely the resultant of external or self-generating forces operating at the time.¹⁶ Among the factors influencing the decision of bankers to reduce loans Bolles mentioned (1) reduction in the flow of savings to the banks resulting from a reduction of profits in the later stages of the boom, (2) distrust of bankers in the ability of their customers to pay, (3) lack of funds (i.e., reserves), and (4) efforts of individual bankers to strengthen their cash position in anticipation of a crash. White, in line with his adherence to the "banking principle," exonerated the banking system from any active part in the cyclical rise because they could not increase or decrease the circulation, but he nevertheless contended that commercial crises occurred only after the development of the credit system and that crises could not spread to countries without such a system.¹⁷ However, in White's analysis speculation was the principal force in the upward movement which leads to the crisis.

THE INFLATIONARY THEORY OF BUSINESS CYCLES

Inflation theories of the cycle in which the upward and downward movements were explained largely in terms of the cumulative interaction of an expanding and contracting money and credit system upon prices, speculation, and business activity were briefly stated by David A. Wells, John Bascom, Arthur Latham Perry, and Arthur T. Hadley.

In contradiction of his famous statement that the sudden elimination of all currency would have no effect on the volume of business activity, Wells in another work presented a clear description of an inflationary cyclical upswing, collapse, and depression in

¹⁶ Albert S. Bolles, *Chapters in Political Economy* (New York: D. Appleton & Co., 1874), pp. 117-32.

¹⁷ Horace White, "Commercial Crises," *Cyclopaedia of Political Science, Political Economy, and Political History of the United States*, ed. John J. Lalor (Chicago: Rand, McNally & Co., 1881), I, 523-30.

business on an imaginary isolated island using cowrie shells as its medium of exchange.¹⁸ As the supply of cowrie shells (money) brought to the island by the discoverers increased, prices spiraled upward, and the velocity of circulation increased rapidly because of the expectation of further increase of prices until the boom burst with the distrust of the monetary unit.

BASCOM'S STATEMENT

John Bascom, in 1860, formulated a brief and reasonably clear analysis of the role in the business cycle of expanding and contracting credit under the pressure of speculation in which he urged that commercial crises were produced by external forces impinging upon an elastic credit system in an economy characterized by a strong propensity to speculate.¹⁹

The cumulative upward movement of the cycle Bascom attributed to the expansive force of speculation initiated by the belief that the supply of some commodities is deficient and that profits can be made in the deficient lines, but it was the elasticity of the money and credit system which made such heavy speculation possible. Bascom clearly stated the belief that, without an elastic credit system which would permit expansion of expenditures in given lines without a corresponding reduction in others, a cyclical price rise would be impossible. Here Bascom failed to recognize the possibility of a cyclical price rise from a cyclical increase in the velocity of circulation. Although he clearly noted the cumulative interaction of speculative buying, credit expansion, rise of prices, further increase in speculation with additional rise in the demand for credit, Bascom failed to present any clear explanation of the mechanism of the cumulative credit expansion in the upswing; the whole movement, in his analysis, depends on speculation.

Too, Bascom's analysis was disappointingly weak on the upper turning-point, which he laid, first, to the action of certain forces,

¹⁸ David A. Wells, *Robinson Crusoe's Money* (New York: Harper & Bros., 1866), pp. 26-30. For Wells's statement on the sudden elimination of all currency see *The Cremation Theory of Specie Resumption* (New York: G. P. Putnam's Sons, 1875), p. 7.

¹⁹ John Bascom, *Political Economy* (Andover, Mass.: W. F. Draper, 1860), pp. 325-32.

such as extraordinary expenditure on railroads, payment of foreign balances, crop losses, and, second, to the culmination of the upward speculative movement because for some unexplained reason prices begin to weaken and speculators begin to sell. His analysis of the cyclical decline, on the other hand, was very clear. The rapid cumulative cyclical decline, following the upper turning-point, he attributed to the speculative unloading of commodities and securities combined with the contraction of credit and pointed out that because of the interconnections and ramifications of the credit system the initial speculative price declines would be propagated through the economic system to create widespread depression.²⁰

HADLEY'S CONTRIBUTION

The theoretical explanation of industrial fluctuations in terms of alternate expansion and contraction of an elastic credit system was further developed by Hadley in 1884 and in 1899.²¹ Hadley's brief analysis was important for two reasons. First, he presented the most direct and precise statement of the cumulative upward spiral of rising prices, credit expansion, and further rise in prices found in the American literature from 1860 to 1900. Second, he suggested significant reversing forces at the upper turning-point.

In Hadley's analysis the upward cyclical movement is the starting-point. He assumed that for some unspecified reason businessmen decide to increase their rate of operation, which sets in motion the cumulative upswing of expanding credit and reacting prices. The increasing demand for credit on the part of businessmen results in increased deposits, and, if prices for any reason begin to go up, this fact increases the size of the bills and further creates increased deposits. As Hadley put it: "*But this increase of checks tends in its turn again to increase prices; and thus matters go on, higher prices producing more deposits, more deposits involving more checks, more checks acting as a virtual inflation of the currency*

²⁰ An analysis of cyclical fluctuations in every essential point similar to the one formulated by Bascom was presented by Perry in the several editions of his book on economics. Perry was at one time a colleague of Bascom's (see Arthur Latham Perry, *Elements of Political Economy* [9th ed., rev.; New York, 1873], pp. 105-18, 337-73).

²¹ Arthur T. Hadley, "Commercial Crises," *Johnson's Universal Cyclopaedia*, ed. Charles K. Adams (new ed.; New York: A. J. Johnson Co., 1884), pp. 423-26.

and producing still higher prices."²² The cumulative expansion is assumed to continue until banks reach their practical reserve limit, or, as he said, "the deposits of the bank increase out of proportion to their coin reserve."²³

Although Hadley offered no satisfactory explanation of why banks characteristically overshoot their reserve ratio in a cyclical upswing, he did suggest in a later work three possible reversing forces at the upper turning-point. In the first place, some slight shock to the expanded credit system, such as the failure of a financial or an industrial firm, might start a spiral of contraction.²⁴ It was in this connection that he fitted misdirected production into the picture as an important factor by pointing out that over-expansion of certain lines of business lead to failures which may start the downward spiral. Second, Hadley suggested that the upper turning-point might come as a result of business failures that occur toward the end of the boom simply because during the upswing businessmen enter into contracts which they can fulfil only with the aid of a continued rise in the price level produced by further expansion of the volume of credit which, because of their reserve position in the later stage of the boom, the banks cannot continue. As a third reversing force at the upper turning-point Hadley implicitly suggested that the inability of banks to continue the rate of credit of expansion, once the bank reserve limit becomes a factor, would reduce the rate of construction of plant and equipment and thus set in motion a cumulative contraction even without any absolute reduction in the volume of bank credit.²⁵

PART II

CYCLE THEORIES IN TERMS OF MONETARY CHANGES AND STICKY PRICES

The explanation of cyclical changes in business activity in terms of variations in the effective volume of circulating medium considered thus far in this chapter depend upon a certain stickiness in the prices of the factors of production; but in these anal-

²² *Ibid.*, p. 425 (italics mine).

²³ *Ibid.*

²⁴ *Economics* (New York: G. P. Putman's Sons, 1899), pp. 249, 295.

²⁵ *Ibid.*, pp. 344-45.

yses this stickiness was tacitly assumed and was never specifically given equal causal rank with changes in the volume of money itself. The remainder of the chapter is devoted to the works of Simon Newcomb, Irving Fisher, and J. Allen Smith, who specifically designated sticky or slowly adjusting prices in an economic system characterized by significant variations in the effective volume of money or changes in the general level of prices as the principal causal factors in cyclical changes in business activity.

NEWCOMB'S ANALYSIS OF DEPRESSIONS

In his excellent analysis of the circular flow of money in 1886, Simon Newcomb attributed periods of industrial stagnation to a diminution in the monetary flow in an economy characterized by sticky-price sectors.²⁶ Newcomb's discussion was limited to the cyclical-decline and depression phase of the cycle; and, except for a few scattered and parenthetical sentences in which he suggested that the reverse of depression would result from an increase in the monetary flow, there is no positive evidence that he thought in terms of cycles at all. This is perhaps only natural, since Newcomb's theoretical explanation of depressions was a by-product of his analysis of the circular flow of money in which he formulated an equation of exchange, or, as he termed it, an "equation of societary circulation," similar in many respects to the now famous Fisher equation.²⁷

THE EQUATION OF "SOCIETARY CIRCULATION"

The following equation formulated by Newcomb aids in understanding his analysis of depression: $V \times R = K \times P$.²⁸ The variables in this equation were defined as follows:

V = The total volume of money including metallic money, paper currency, and bank credit²⁹

R = Rapidity of circulation³⁰

²⁶ *Principles of Political Economy* (New York: Harper & Bros., 1886).

²⁷ Irving Fisher, *The Purchasing Power of Money* (New York: Macmillan Co., 1911).

²⁸ Newcomb, *op. cit.*, p. 328.

²⁹ *Ibid.*, p. 323.

³⁰ Newcomb pointed out that while R is not fixed (constant) but subject to changes from various causes, "it can only change between very narrow limits" (*ibid.*, p. 324).

K = The "industrial circulation," really transactions, i.e., everything for which money is paid, including debt payments³¹

P = The scale of prices or more specifically "the ratio of the actual scale of prices to the unit scale [base period]"³²

Re-writing Newcomb's equation in the following form enables us to see at once the crucial point in his explanation of depressions:

$$\frac{VR}{P} = K.$$

A reduction in the monetary flow (VR) without an equal percentage-wise reduction in the transaction price index (P) will, according to Newcomb, produce a diminution in the industrial

³¹ *Ibid.*, pp. 326, 328, 332.

³² *Ibid.*, pp. 328, 329. A comparison of the two equations formulated by Newcomb and Fisher reveals, as Fisher fully acknowledges, Fisher's heavy debt to Newcomb. Building upon Newcomb's work, Fisher changed the symbols (V to M , and K to T), substituted for Newcomb's volume of monetary flow (VR) the two components which Newcomb elsewhere suggested, and assigned each component its separate velocity. Newcomb wrote:

$$F = V \times R \quad \text{and} \quad F = F' + F'',$$

where

F = total flow of money,

F' = flow of metallic and bank money,

F'' = flow of bank credit.

If in Newcomb's equation $V \times R = K \times P$ we substitute the value of $V \times R$ we have

$$F' + F'' = K \times P.$$

In terms of Fisher's equation, $MV + M'V' = PT$, we have the following:

$$F' = MV,$$

$$F'' = M'V',$$

$$K = T.$$

The velocity coefficient R of all money as a total is included in Newcomb's equation $V \times R = K \times P$, but separate velocity coefficients were not assigned to cash (metallic, paper money) and bank deposits. For earlier formulations of quantity equations see Jacob Viner, *Studies in the Theory of International Trade* (New York: Harper & Bros., 1937), p. 249, and Arthur Marget, *The Theory of Prices* (New York: Prentice-Hall, Inc., 1938), I, 145-53.

flow, that is, depression. These two forces—namely, variations in the monetary flow and inflexible or sticky prices—constitute the primary causal elements in Newcomb's explanation of depressions.

THE DIMINUTION OF THE MONETARY FLOW

A crucial question to which Newcomb gave but brief consideration is why should there occur more or less regularly a preponderance of decisions on the part of individuals and banks such as to bring about a reduction of the monetary flow. Newcomb recognized the importance of the question: "We have to inquire whether there are any causes which may be, from time to time, operative upon a whole community, so as to make all or the general body of its members desirous of exchanging their money more or less rapidly than usual."³³ Despite its importance in his theory, Newcomb presented little real analysis of this point, although he made several suggestions. First, he suggested uncertainty, doubt, and disappointment. "Every cause which leads him [the income recipient] to doubt what is the most satisfactory disposition to make of his money interferes with his expenditure, and leads him to keep his money longer than he otherwise would."³⁴ Again he suggested: "If anything happens to disappoint the expectations on which these conclusions [as to what he will do with his money] are based, he is likely to keep his money longer than he otherwise would."³⁵ Second, Newcomb suggested that anything which may cause a "large body of the community to economize" produces a reduction in the monetary flow. Third, a foreign gold drain was noted by Newcomb as one cause of the diminution of the monetary flow. This latter, of course, may serve as a partial explanation of national cycles as distinct from synchronous international ones.

Newcomb also cited as specific causes responsible for a reduction in the velocity of circulation and, through it, diminution in the monetary flow (1) disagreements between employers and employees, (2) periods of uncertainty which may cause investors to keep their funds idle longer, and (3) a prospective price decline.³⁶

³³ *Ibid.*, p. 340.

³⁴ *Ibid.*

³⁵ *Ibid.*

³⁶ *Ibid.*, p. 125.

Unless the possessors of spendable funds are assumed, prior to any decline in prices, to forecast that decline, or except in so far as it may be considered a cumulative force in a price decline already under way, this third cause merely begs the question. Obviously, a prospective fall in price can hardly be offered as the cause of the price decline itself. To the extent that a reduction in investment, and hence of the monetary flow, is a function of uncertainty, forces responsible for the uncertainty occupy the causal role rather than their resultant, the diminution in the monetary flow. One cannot escape the conclusion that Newcomb failed to offer sufficiently detailed explanation of the initial preponderance of decisions in the economy to melt coin or increase the holding of claims to wealth in the forms of money so as to account for more or less regularly recurring diminution in the monetary flow essential in his explanation of recurrent depression.

THE EFFECT OF STICKY PRICES

Starting largely from the assumption of a diminution in the monetary flow or simply recognizing that, in fact, such reductions do occur, Newcomb argued that depression or industrial stagnation results directly from the failure of the transaction price index and debt contracts to effect a downward adjustment as rapidly as the diminution in the monetary flow. He maintained that the typical "immediate effect" of a diminution of the monetary flow would be "a diminution of the industrial [flow] as well" because of the more rapid variation in the effective volume of circulating medium than in adjustment in the weighted transaction price index and debt contracts due to sticky-price sectors and debt contracts.³⁷ Hence the first effect of a diminished monetary flow is stagnant business with unemployed economic resources while the weighted transactions price index is being adjusted under the pressure of unemployment and reduced demand for goods and services. "The real trouble in such cases [depressions] is that wages and prices are higher than they should be to correspond to the monetary flow."³⁸ Again he noted that ". . . the real evil is not merely this diminution of the [monetary] flow, but the lack

³⁷ *Ibid.*, pp. 382-87.

³⁸ *Ibid.*, p. 385.

of correspondence between the flow and the scale of prices which thus arises."³⁹ Assuming a reduction of "one per centum of the total expenditure of the entire community," Newcomb argued that "it would follow that one per centum of the industrial population would be thrown out of employment so long as the scale of prices remained as before."⁴⁰

It was the sticky or rigid prices in the price system and debt contracts, according to Newcomb, which force the adjustment to a diminution in the monetary flow to occur largely in a reduction in the physical volume of business.

Newcomb cited certain wages (salaries) and retail prices as significant rigid-price areas.

The salaries of government officers can be changed only by legislation, and therefore do not respond to changes of demand. The salaries of employees generally are to a certain extent subject to the same rule. They are fixed by agreement or custom, and can be changed only after the pressure has become so serious as to derange the business of employers. The same thing is true of most retail prices.⁴¹

Further, Newcomb, thinking primarily in terms of the volume of business which could be transacted with a given effective volume of circulating medium, included the volume of debt payments as a component of the industrial flow (K) in his "equation of societary circulation," and he consistently argued that the failure to scale debt contracts (payments) *pari passu* with the diminution of the monetary flow would be equally as effective as inflexible prices (including wages) in reducing the industrial flow (volume of business activity). As Newcomb put the argument:

*The payment of a debt is an integral portion of the monetary flow; but it is a portion which cannot be diminished in response to a general diminution in the flow, except through the disaster of bankruptcy on the part of the debtor. The result is that when the general flow of the currency diminishes, the intensity of its effect is exaggerated, not only because there are such large classes of men who cannot command the same prices as before, but because in every mercantile community large payments of debts are always due.*⁴²

Unadjusted debt contracts in the face of a diminution of the monetary flow, according to Newcomb, reduce the industrial

³⁹ *Ibid.*, p. 386.

⁴¹ *Ibid.*, p. 383.

⁴⁰ *Ibid.*, pp. 380-81.

⁴² *Ibid.*, p. 385 (italics mine).

flow (volume of business activity) simply because the payment of debts absorbs so much of the diminished monetary flow that the remainder is insufficient to transfer at existing prices the amount of economic goods and services consistent with full employment. It should be noted that Newcomb also argued: "The very same trouble [diminution of the industrial flow] will arise if prices are made higher while the flow [of money] remains unaltered by wage or price increases by labor unions or other monopolists."⁴³

As a result of rigid prices and inflexible debt contracts, Newcomb pointed out that the effects of a diminution in the monetary flow will be concentrated upon the flexible price commodities either in the form of price or volume reductions.

But suppose that there are certain channels in which the sellers of services or commodities are able to demand the same prices as before; that is, to keep up the same monetary flow as before through the channels which lead to themselves. The inevitable result will be that the flow into other channels will be diminished in an undue proportion, and that other persons must in consequence suffer.⁴⁴

The incidence of a diminished monetary flow upon flexible price groups was indicated by Newcomb by arbitrarily dividing a hypothetical community into Class A, which he assumed able to maintain prices and the same monetary flow to it, and Class B, which he assumed unable to maintain both prices and volume. Assuming a 10 per cent reduction in the monetary flow, Newcomb argued: "The result will be that Class A will command the same prices for all their goods and services as before, while Class B will find a diminution of 20% in the flow to them."⁴⁵ If, on the

⁴³ *Ibid.*, pp. 385-87.

⁴⁴ *Ibid.*, pp. 383-85. The phrases "demand the same prices" and "keep the same monetary flow" involve the tacit assumption not only that the prices of products do not change but that their respective demand curves do not shift downward to the left as the total volume of expenditures in the economy (monetary flow) is reduced. The demand curves are assumed to pass through the co-ordinate point of previous quantity and price.

⁴⁵ *Ibid.*, p. 384. The choice here assumed between maintaining price and maintaining quantity assumes complete monopoly power on the part of Class B. Newcomb also assumed in his illustrations that the demand curve for the combined products of Class B in the new position, i.e., after the diminished monetary flow in the economy, had constant unitary elasticity ($p^1q = C$, where C is equal to the monetary flow left to Class B).

other hand, Class B decides to maintain prices because the terms of exchange are against them in favor of Class A, Newcomb held:

The result will be that their prices as well as those of Class A will be kept up, thus there will be a diminished industrial flow from them corresponding to the diminished monetary flow to them. In short . . . 20% of them will be idle, or perhaps all of them will be idle 20% of the time. . . . Thus we shall have 90% of the population at work on the old scale of prices and 10 per cent idle. . . .⁴⁶

The immediate effect of a reduction in the monetary flow would be a depression because of the rigidity of prices and debt contracts. Newcomb argued that "the industrial flow is restored as soon as prices accommodate themselves to the new state of things."⁴⁷

CONCLUSION

Newcomb saw clearly that a diminution in the monetary flow must be compensated by a corresponding diminution in prices or volume or some combination of the two, and he correctly pointed out that in an economic system characterized by price rigidities and debt contracts the necessary adjustments would be concentrated on the flexible elements in the system, namely, flexible prices and volume of goods and services exchanged. Excellent and suggestive as was Newcomb's analysis, several significant limitations must be noted. First, his discussion was restricted, except by implication, to the depression phase of the cycle; there is no positive evidence that Newcomb even viewed the business cycle as a quasi-rhythmical alternation of cumulative prosperity and depression. This aberration is ascribable in part, perhaps, to the fact that his analysis of these phenomena occurred as a by-product of his discussion of the circular flow of money. Second, Newcomb's analysis omitted any consideration of a cumulative cyclical decline or upswing. He overlooked the possibility that the initial diminution of the monetary flow might set up a cumulative decline before the needed wage and price adjustments could be effected. In accordance with his "equation of societary circulation" Newcomb assumed that the volume of business transacted ("industrial circulation") would always be equal to that permitted by the remaining "monetary circulation," no more and no less.

⁴⁶ *Ibid.*, p. 385.

⁴⁷ *Ibid.*, p. 381.

Such rigid acceptance of the equation of exchange appears to preclude the possibility of a cumulative decline resulting from the cumulative passing-back through the system of an initial reduction in the monetary flow. However, the cumulative decline or upswing might have been introduced into his analysis through the secondary effect upon the velocity of circulation itself (hoarding) induced by the expectation of further price change in the direction of that initially produced by the "diminution of the monetary flow." Third, in Newcomb's analysis debt contracts and price rigidities reduce the volume of business activity only because the payment of debts and payments for the purchase of rigid-price goods and services absorb so much of the diminished effective volume of circulating medium that the remaining amount is inadequate to transfer at existing prices the volume of goods and services consistent with full employment of available productive resources. This analysis of depressions in terms of diminution of the monetary flow and sticky prices was, therefore, solely in terms of the limitations of the volume of transactions rather than in terms of the effect of disparities in the cost-price structure upon profit margins and thus upon the volume of business activity. Yet Newcomb must be credited with having emphasized significant variations in the effective volume of circulating medium and sticky prices as important causal factors in the depression.

FISHER'S ANALYSIS IN TERMS OF LAGGING INTEREST RATES

The influence of a single "sticky" price—namely, interest rates—upon maladjustments in the cost-price structure and profit margins was the central cycle-amplifying force in the brief explanation of cycles suggested by Irving Fisher in 1896.⁴⁸ Specifically, Fisher suggested that the significant causal factor in "credit cycles" or alternate periods of "business stimulation and depression" was the tardy and imperfect adjustment of market rates of interest to changes in the general level of prices.

From his statistical analysis of the relation of interest rates to price changes Fisher concluded:

⁴⁸ *Appreciation and Interest* ("Publications of the American Economic Association," 1st ser., No. XI [1896]), pp. 337-442.

Four general facts have now been established: (1) High and low prices are directly correlated with high and low rates of interest; (2) Rising and falling prices and wages are directly correlated with high and low rates of interest (3); The adjustment of interest to price (or wage) movements is inadequate; (4) This adjustment is more nearly adequate for long than for short periods.⁴⁹

INTEREST RATES AND FORESIGHT IN THE UPSWING

It was the third and fourth of these conclusions which Fisher considered important in the theoretical explanation of cyclical fluctuations in business activity. Given a significant but unexplained upward movement in the general price level, Fisher argued that the "nominal" or market rate of interest lags behind the "real" rate of interest to produce not only an absolute but a percentage-wise increase in profits.

Suppose an upward movement of prices begins. Business profits (measured in money) will rise, for profits are the difference between gross income and expense, and if both these rise, their difference will also rise. Borrowers can now afford to pay higher "Money interest."⁵⁰

According to Fisher, borrowers are then both able and willing to pay higher "money interest," but it is not necessary for them to do so since "lenders are willing to loan the same *amount* for the same interest," because, owing to lack of foresight on their part, they do not see, as borrowers do, the rise in profits which would permit borrowers to pay higher interest rates.⁵¹ Noting that "in

⁴⁹ *Ibid.*, p. 417.

⁵⁰ *Ibid.* Even here Fisher assumed a lag of the market interest rate behind changes in the price level. An illustration will make the point clear. Assume a 10 per cent rise in all prices.

Item	Initial Period	After 10 Per Cent Price Increase
Gross income.....	110	121
Cost (including interest)	100	110
Profit (amount)	10	11
Profit (percentage of costs)....	10	10

Thus, if all cost (expenses), including interest, rise 10 per cent, the profit rate, but not the amount, remains unchanged; only if interest rates or, of course, some other costs lag behind price change is the percentage of profit increased.

⁵¹ *Ibid.*, p. 419.

the actual world.... foresight is very unequally distributed," Fisher argued: "Only a few persons have the faculty of always 'coming out where they look.' Now it is precisely these persons who make up the borrowing class. *Just because of their superior foresight society delegates to them the management of capital.*"⁵²

Therefore, according to Fisher, when prices are rising, borrowers are more apt to see the additional profits than are lenders.⁵³ While he evidently considered "imperfection of foresight" responsible for the lag of the market rate of interest behind the real interest rate, Fisher, nevertheless, contended that it was "inequality of foresight" between borrowers and lenders which was the subjective cause of the rising volume of loans characteristic of a period of business expansion. If foresight were imperfect but equal, as between borrowers and lenders, "it would not influence the volume of loans" even though "the rate of interest would be below normal" and borrowers would profit at the expense of lenders, because, since neither borrower nor lenders would know it, "no borrower borrows more and no lender lends less."⁵⁴ Hence imperfection of foresight causes the nominal or market rate of interest to lag behind the real rate of interest in the early stages of significant upward price movements and the inequality of foresight means that "borrowers will realize an extra margin of profit after deducting interest charges."⁵⁵ This additional margin of profit increases the demand for loans. As Fisher pointed out, "the 'demand schedule' will rise," i.e., shift upward to the right, while the "'supply schedule' will remain comparatively unchanged."⁵⁶ And though it will "raise the rate of interest," Fisher argued, "it will also cause an increase of loans and investments" in the interval during which the market rate of interest is being adjusted to the

⁵² *Ibid.* (italics mine).

⁵³ *Ibid.*

⁵⁴ *Ibid.*, pp. 418-19. Fisher's argument on this point is open to serious question. If foresight were imperfect yet equal, as he says, there would be a transfer of wealth from lenders to borrowers, i.e., an increase in both the rate and the total amount of profits of borrowers. The argument that loans would not be expanded assumes that past and present profit rates do not influence profit expectations and through them the volume of business activity and the volume of loans. In any system motivated by profit expectations such an assumption is certainly open to question.

⁵⁵ *Ibid.*, p. 417.

⁵⁶ *Ibid.*, p. 419.

real rate. Such an expansion of loans and investments due to the lag of interest rates behind price movements Fisher considered one of the significant forces in business stimulation or the "credit cycle."

OMISSION OF LIMITING AND REVERSING FACTORS

In this earlier work of Fisher's there is no suggestion of the cumulative interaction of credit expansion, rising prices, and further credit expansion so clearly developed in later works.⁵⁷ Too, in spite of the fact that the "expansion" and "contraction" of loans, crucial to the whole analysis, implies an elastic credit system, Fisher here failed to indicate the nature of the elasticity. More important, in this early analysis there is no statement or implication that the progressive rise of the "nominal" rate up to or above the "real" or imputed rate of interest in the later stages of the boom acts as a significant reversing force. Here Fisher simply observed that by "continual trial and error the rate approaches the true adjustment."⁵⁸ In fact, nothing was said in this early work about the turning-points of the cycle at all; instead, reversal at both the peak and the trough was left to unenumerated forces. The downward price movement, like the initial upward price movement, was simply assumed under way as a starting-point in the analysis.

Once a price decline is under way, the role of lagging market interest rates on the downside is similar though, of course, opposite in effect to that in the cyclical upswing. Fisher said: "... When prices fall borrowers see that they cannot employ 'money' productively except on easier terms, but lenders [because of imperfect foresight] do not see why the terms should be made easier. In consequence, 'entrepreneurs' borrow less, enterprise languishes."⁵⁹ The maladjustment of interest rates on the downside thus accentuates the cyclical decline in the same way in which it acts as a powerful force in the upward movement.

Fisher concluded that "it can scarcely be denied that the maladjustment of interest is a central feature in the whole movement"

⁵⁷ *The Purchasing Power of Money.*

⁵⁸ *Appreciation and Interest*, p. 418.

⁵⁹ *Ibid.*, p. 419.

of periods of active and depressed business activity.⁶⁰ He held that "these effects of credit could not follow if the interest rate were perfectly adjusted"; but he went further and argued that "behind it all is imperfection of foresight" or, more accurately, "inequality of foresight." This "inequality of foresight," according to Fisher, "produces overinvestment during rising prices and relative stagnation during falling prices."⁶¹

CONCLUSION

Fisher's contribution to the theory of business cycles was in applying directly to the cycle problem the divergence between the "real" and the "nominal" rate of interest which had been variously developed in connection with long-run changes in the level of business activity by a long line of economists from Thornton in 1802 to Marshall in 1887.⁶² It is impossible to determine how far Fisher was influenced in this early statement by earlier writers, particularly Marshall. Marshall's influence is strongly suggested, however, by a long quotation from the *Principles* in which Marshall said that "the explanation of the cycle would be found to be intimately connected with those variations in the real rate of interest which are caused by changes in the purchasing power of money."⁶³

To whatever extent Fisher may have leaned on earlier writers he must be credited with having made the divergence of "real" and "nominal" interest rates more specifically applicable to the analysis of the business cycle than any of his predecessors. Obviously, many details of the theory were not worked out, but in employing the later-developed Wicksellian concept in the explanation of the cycle problem and in approaching the problem through the effect of lagging cost (interest rates) upon profit margins Fisher helped to shift thinking about the cycle problem to the

⁶⁰ *Ibid.*, p. 420.

⁶¹ *Ibid.*

⁶² Cf. F. A. Hayek, *Monetary Theory and the Trade Cycle* (New York: Harcourt, Brace & Co., 1933), pp. 109-11.

⁶³ *Ibid.*, p. 421. Part of the paragraph quoted by Fisher from Alfred Marshall, *Principles of Economics* (3d ed., 1895), p. 674. Fisher also referred to Marshall's *Testimony before the Gold and Silver Commission*, 1888.

viewpoint of the borrowing entrepreneur and thus opened a more fruitful approach in terms of money and banking theory.

SMITH'S EXPLANATION OF CYCLES IN TERMS OF STICKY
FACTOR PRICES AND PROFIT MARGINS

In a similar approach but in an analysis superior to that of Fisher's, J. Allen Smith definitely furthered the theory of business cycles in 1896.⁶⁴ Building upon the work of Newcomb and acutely anticipating much of the later theory of Veblen and Mitchell, Smith specifically attributed cyclical changes in business activity to the response of entrepreneurs to variations in profit margins and argued that these short-run changes in profit margins were produced by a combination of sticky factor prices and fluctuations in the general level of prices resulting from the operations of an imperfect monetary system.

A GENERAL GLUT POSSIBLE IN A MONEY ECONOMY

Accepting the Say-Mill-Ricardo "law of markets" concerning the impossibility of a general glut as valid in a barter economy where "goods are exchanged directly for other goods," Smith argued that "aggregate demand" would always equal "aggregate supply," and "there could be no such economic disturbances as panics and depression."⁶⁵ But in a money economy "general prices become a matter of great importance."⁶⁶ Under the price system "the co-ordination of the various industrial forces is effected through the agency of prices, and it is the failure of prices to show the actual situation that leads to irregularity in production."⁶⁷ Since the immediate motive for industrial activity in a money economy is on a "money basis," instead of the former "commodity basis," Smith held that "stability of general prices is essential to healthy industrial activity"⁶⁸ and proceeded to argue that "fluctuations in the value of money are the cause of the paroxysms of modern industry."⁶⁹

⁶⁴ *The Multiple Money Standard* ("Publications of the American Academy of Political and Social Science," No. 167 [Philadelphia: American Academy of Political and Social Science, 1896]).

⁶⁵ *Ibid.*, pp. 1-2, 6, 8, 60.

⁶⁷ *Ibid.*, p. 60.

⁶⁶ *Ibid.*, p. 3.

⁶⁸ *Ibid.*, p. 2.

⁶⁹ *Ibid.*, p. 8.

Admitting that a general oversupply of goods relative to demand would be impossible in a barter economy, Smith advanced the argument, fundamental to his analysis, that in a money economy the supply of goods may alternately exceed and fall below the supply of money offered in demand for goods principally because of fortuitous changes in the money base, an elastic credit system, and the building-up and drawing-down of cash balances. Smith defined money to "include every kind of general purchasing power" and argued that "the supply of commodities is the demand for money, while the demand for commodities is the supply of money" and concluded that at a given time it is possible for the "demand for money" to be greater than, equal to, or less than, the "supply of money."⁷⁰ He stated this relationship more precisely:

Total Supply of Commodities	:	Total Demand for Commodities	::	Total Demand for Money	:	Total Supply of Money ⁷¹
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Contrary to the restricted Say "law of markets," Smith contended that there could be general overproduction relative to the monetary demand for commodities, that is, the total supply of commodities (demand for money) could exceed the total supply of money (demand for commodities). Under such a condition the general level of prices would fall; rising prices would result from the reverse situation. During a period of rising prices the stream of monetary purchasing-power simply increases more rapidly than the stream of goods and services, according to Smith, because of the elasticity of the money and credit system and because of the "introduction of the speculative element into exchange."⁷² The responsibility for cyclical fluctuations was placed squarely upon the monetary system by Smith when he pointed out that "the continually recurring periods of excessive activity followed by depression are due to the fact that the monetary system is not adapted to the work which, under the new and highly complex economic organization, it is called upon to perform."⁷³

⁷⁰ *Ibid.*, pp. 7-8, *passim*. This argument was not new but was stated by Thomas Atwood in England in 1828 (cf. Viner, *op. cit.*, pp. 199-200).

⁷¹ *Ibid.*, p. 8.

⁷² *Ibid.*, p. 7.

⁷³ *Ibid.*, p. 4; cf. p. 59.

Despite the dependence of his theory upon significant and more or less recurrent upward and downward movements in the general level of prices, Smith failed to offer any very cogent analysis of the mechanism of the monetary system which would cause such movements. Aside from noting the cyclical rise and fall of general prices as a historical fact, Smith attributed these general price changes, more implicitly than explicitly, to fortuitous changes in the supply of the monetary base more rapid than changes in the physical supply of goods and services, expansion and contraction of the credit system in response to profit opportunities, and general shifts to or out of cash balances (hoarding or dishoarding).⁷⁴ The argument was not specific and certainly failed to show that such recurrent movements were inherent in the existing monetary system.

CHANGES IN BUSINESS ACTIVITY DUE TO VARIATIONS IN PROFIT
MARGINS RESULTING FROM STICKY FACTOR PRICES

Given, however, as a starting-point a rise in the general level of prices, Smith held that a cumulative cyclical rise in business activity would inevitably result, first, from the rise in profit margins due to the stickiness of factor prices—namely, interest, wages, and rent—and, second, from speculation induced by the “expectation that the value of goods will rise.”⁷⁵

Acutely placing the profit-receiving entrepreneur in the strategic decision-making position, Smith argued that in a private-enterprise system the entrepreneur's profit position is the chief determinant of the direction and level of business activity.

Fluctuations in general prices must be looked at from the point of view of the profit receiver to understand their influence upon production. As he is the borrower of capital, the employer of labor and the manager of industry, it is through him that a rise or fall in general prices must bring about an increase or decrease in industrial activity.⁷⁶

Because interest, wages, and rent are sticky on the upside, Smith pointed out that the “slightest upward movement of general prices increases the income of the entrepreneur.”⁷⁷ If factor

⁷⁴ *Ibid.* pp. 6–7.

⁷⁶ *Ibid.*, p. 52.

⁷⁵ *Ibid.*, p. 57.

⁷⁷ *Ibid.*

prices were perfectly flexible in response to a price change, profit margins would be unaltered.

*But the inertia of nominal interest, wages and rent prevents them from rising or falling with general prices, and consequently every change in the value of money disturbs the normal relation between interest, wages, profits, and rent. A rise in the prices leaves nominal interest, wages and rent behind, and thus increases abnormally the share which goes to the entrepreneur.*⁷⁸

Conversely, “. . . a fall in general prices by diminishing the share of the entrepreneur weakens the industrial motive and leads to actual decrease in production.”⁷⁹

The stickiness of interest, wages, and rent Smith laid to the fact that (1) “the business community habitually look upon the established monetary unit as possessing a constant quantity of value,”⁸⁰ (2) “a change in the purchasing power of money is not readily seen,” and (3) time contracts exist, particularly “in the case of interest and rent.”⁸¹

Smith’s analysis of the imperfect flexibility or the nominal interest rate was similar in many respects to the analysis of the divergence of the “nominal” and “real” rate of interest, variously developed by Thornton, Marshall, Fisher, and Wicksell.⁸² In a barter economy where “credit was expressed in terms of commodities,” Smith admitted that “the apparent rate of exchange between present and future goods was the actual rate”; but, when credit is expressed in terms of a fluctuating monetary unit, he pointed out that “the nominal rate of interest might be very low, while the real rate was very high or *vice versa*.”⁸³ In a period of prosperity and rising prices the nominal rate of interest is high, but Smith noted that “the nominal rate, however, under the existing system is no indication of the real rate.” He argued, like Alfred Marshall and Irving Fisher, that “accordingly as general prices are rising or falling” it is necessary to subtract from or add

⁷⁸ *Ibid.*, pp. 52–53 (italics mine).

⁷⁹ *Ibid.*, p. 5.

⁸⁰ *Ibid.*, p. 57; note that Smith uses the word “inertia” for the modern term “sticky” (p. 5).

⁸¹ *Ibid.*, p. 53. Smith considered the reverse true of falling prices.

⁸² Cf. Hayek, *Monetary Theory and the Trade Cycle*, *loc. cit.*

⁸³ *Ibid.*, pp. 49–50.

to the nominal rate to obtain the real rate of interest. Hence, according to Smith, "the real rate of interest is lower during the period of rising prices and higher during the period of falling prices . . ."; and, since the lender "fails to distinguish between the nominal and the actual rate of interest" where prices are rising, "he is unconscious of what he loses through the repayment of his loan in money of diminished purchasing power."⁸⁴ Consequently, the lender's "willingness to loan increases with the rise in the nominal rate even though the real rate at the same time falls." But even though the nominal rate of interest rises with an increasing volume of loans, the rise in nominal interest is not enough to "compensate for the fall in the purchasing power of money, and the result is a decline in the real rate of interest."⁸⁵

Smith similarly explained the lag of wages and rent behind a rise in the level of prices. He held that since the laborer "does not perceive the contemporaneous rise in prices, an increase in nominal wage seems to him a real gain," which "partially accounts for the fact that wages rise less rapidly than the price of commodities."⁸⁶ Hence Smith concluded that "the rate of wages is affected by rising prices in the same way as that of interest."⁸⁷ Smith also maintained that "what is true of interest and wages is also true of rent."⁸⁸ Thus a rise in the general level of prices, according to Smith, because of the stickiness of the principal factor prices, "raises profits at the expense of interest, wages, and rent."⁸⁹

THE CUMULATIVE UPWARD MOVEMENT

The initial increase in profit margins from a rise in the general level of prices in an economy characterized by sticky factor prices, according to Smith, sets in motion three cumulative forces, namely, (1) speculation, (2) credit expansion, and (3) construction of capital goods.

First, Smith argued that the combination of "high profits on the one hand and the low interest on the other," plus the expectation of a profit from the further rise of prices, leads to a speculative

⁸⁴ *Ibid.*, pp. 50-51.

⁸⁵ *Ibid.*, pp. 50.

⁸⁶ *Ibid.*, p. 51.

⁸⁷ *Ibid.*

⁸⁸ *Ibid.*, p. 52.

⁸⁹ *Ibid.*, p. 50.

expansion of credit. He noted that, "as a result of this partly real, partly fictitious increase in the entrepreneur's income, business becomes abnormally active, takes on a speculative character . . . , " because, "when prices are rising, credit transactions take on a speculative character, 'short sellers' of gold [borrowers] expect to make a profit by its depreciation."⁹⁰ In short, "the undue extension of credit is ascribable to the expectation that the value of goods will rise."⁹¹ Second, the increased nominal and real income of the entrepreneur, "augments the demand for credit which, in turn, leads to a still further rise in prices."⁹² The cumulative interaction of rising prices, expansion of credit, and further rise in prices was clearly worked out by Smith.

When gold has begun to depreciate the tendency is always towards still greater depreciation and more extended credit. Each addition to the volume of credit brings about a still further decline in the value of gold, which in turn leads to a still further extension of credit.⁹³

Third, the increase in profit margins, Smith suggested, leads to an increase in the construction of capital equipment which would have a cumulative effect during the early stages of the upward movement.

LIMITING AND REVERSING FORCES

Smith did not depend upon the progressive adjustment of sticky factor prices to changes in the general price level (the more rapid rise of these sticky factor prices than of general prices) in the later stages of the boom to narrow or wipe out profit margins and constitute a self-limiting or reversing force at the peak of the cycle. Instead, he held that the upward cyclical movement may be halted or reversed by (1) limitations to expansion imposed by the money and credit system and, principally, (2) the increased flow of consumption goods and services at the end of the period of gestation from the capital goods created during the upswing.

In connection with the first limiting and reversing force, Smith recognized that the upward cyclical expansion of credit must be halted "at the point beyond which the credit system cannot be

⁹⁰ *Ibid.*, p. 18.

⁹² *Ibid.*, p. 57.

⁹¹ *Ibid.*, p. 39.

⁹³ *Ibid.*, p. 17.

extended without breaking down" and that a "collapse of credit . . . may arrest the rise in prices."⁹⁴ He noted: "The panic comes when the commercial world begins to realize that the short sellers of gold [borrowers] have sold more than they can deliver [pay]."⁹⁵

In Smith's analysis the principal limiting and reversing force at the upper turning-point, however, was the increased flow of goods from the productive capacity created during the upswing. The rise of prices, increase of profit margins, expansion of credit, and speculation during the cyclical upswing, according to Smith, lead to an overexpansion of "intermediate," or capital, goods relative to the demand for "subsistence" or "immediate consumption goods."⁹⁶ Such a cyclical maladjustment in the supply of capital goods and the demand for their output of goods and services he ascribed to a combination of two forces. First, Smith emphasized the relative shift to saving, away from spending, resulting from the absolute and relative increase in profits during the cyclical upswing. Upon the theory that "it is chiefly from profits that capital is augmented" and that a rise in the general level of price increases profits because of the stickiness of factor prices, Smith argued that "the effect [of a price rise] is to increase disproportionately the demand for intermediate products [capital goods]." And observing that "a rapid accumulation of capital and a great extension of industry" is characteristic of the period of rising prices and prosperity, Smith thought that "this is the necessary consequence of the change in distribution which the rise in general prices brings about."⁹⁷ This leads to a "general over-supply of goods" because, on one side, the increase in profits "largely takes the demand for buildings, machinery, etc.," which augments the supply, while, on the other side, the shift to profit leads to a "relative decrease in the share of the wage receiving class, which is spent mainly for subsistence."⁹⁸ As Smith put it: "An abnormal increase in the share of the entrepreneur [during rising prices and prosperity] augments the productive capacity of industrial society

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*, p. 18.

⁹⁶ *Ibid.*, pp. 55-57.

⁹⁷ *Ibid.*

⁹⁸ *Ibid.*, p. 56.

at the expense of its power to consume. This disproportionate distribution leads inevitably to glutted markets and falling prices."⁹⁹ The upward movement ends when the flow of goods from the new productive capacity comes to the market.

In the usual course of things the rise in general prices will continue until the abnormal gains of the entrepreneur begin to reach the final stage of consumption goods. It cannot continue beyond the expiration of the production period since at this point the disproportionate increase of intermediate products, which accompanies the upward movement of general prices, must begin to make itself felt in a corresponding increase in the supply of final products. It is this fact which sets a limit to the possible rise in general prices.¹⁰⁰

The increase in the flow of goods and services from the added productive capacity at the end of the period of gestation, combined with a reduction of the "efficient demand for means of subsistence" because of the "relative decrease in the share of the wage receiving class," and the corresponding shift to profit as a result of sticky factor prices, according to Smith, end the upward movement.¹⁰¹ He concluded that "the fall in general prices must set in when the end of the production period is reached."¹⁰²

CUMULATIVE FORCES IN THE DECLINE

Once the cyclical decline is under way, Smith pointed out that it is intensified by two forces, namely, (1) the rising value of gold resulting from the contraction of credit and increasing distrust of the devices ordinarily supplementing the work of gold, and (2) the stickiness of factor prices, i.e., the failure of interest, wages, and rent to decline as rapidly as general prices.¹⁰³ The argument was simply the reverse of that on the upside. On the first point Smith simply noted that "all those devices supplementing the work of gold as money are distrusted," and thus bank credit is severely contracted. As for the effect of sticky factor prices on profits, Smith said that "the relation existing between interest, wages and rent is such that . . . when prices are falling, real interest, wages

⁹⁹ *Ibid.*

¹⁰⁰ *Ibid.*, p. 57.

¹⁰¹ *Ibid.*, pp. 56-57.

¹⁰² *Ibid.*, p. 57.

¹⁰³ *Ibid.*, pp. 17, 52, 56, 58.

and rent are raised at the expense of profits.”¹⁰⁴ While he suggested that the length of the cyclical decline is determined by the durability of capital goods in excess of demand and the time required to adjust factor prices to new conditions, Smith offered no analysis of the limiting and reversing forces at the lower turning-point.

CONCLUSION

Smith contributed two things to cycle theory. In the first place, he clearly saw and correctly argued that the Say-Mill-Ricardo argument against the impossibility of a general glut was not valid in a money economy where the choice of individual holders of monetary purchasing-power determine the rate of spending that purchasing-power. He accepted the Say “law of markets” as valid in a barter economy but argued that, in a money economy characterized by (1) fortuitous changes in the money base, (2) an elastic money and credit system, and (3) hoarding and dishoarding, the general level of prices could rise and fall and the total supply of commodities at cost prices (the demand for money) could exceed the demand for commodities (the supply of money offered for commodities). Although he never got it stated very cogently, Smith saw that in a money economy individuals get not goods but money incomes equal to the cost of production. In such a system where individuals have the choice of the rate at which their money incomes are spent and where the community may change the monetary income stream through the expansion or contraction of loans through an elastic credit system, the stream of monetary purchasing-power may currently exceed or fall below the value of commodities at cost prices. Hence it is possible to have periods of deficient supply relative to demand, that is, rising prices and prosperity, as well as other periods in which the total supply of commodities at cost prices exceeds the flow of monetary purchasing-power, that is, falling prices and depression. A general glut is thus theoretically possible. Smith’s second principal contribution to the theory of business cycles was in his analysis of the entrepreneur’s response to changes in profit margins resulting from

¹⁰⁴ *Ibid.*, pp. 56-57.

shifts in the general level of prices in an economy having sticky factor prices. Smith specifically placed the profit-receiving entrepreneur in the strategic decision-making position and correctly held that in a private-enterprise system the entrepreneur's profit position is the determinant of the direction and level of business activity. Despite several significant omissions, in many respects Smith's analysis of business cycles in terms of fluctuating profits resulting from sticky factor prices was superior to the analysis of Newcomb and Fisher and was prior to, and in many respects equal to, the theories of cycles in terms of varying profit margins later presented by Veblen (1904), Lescure (1906), Fisher (1907), and Mitchell (1913).

CHAPTER VII

CONCLUSIONS

EXTENT OF CONSIDERATION OF BUSINESS-CYCLE THEORY

THE economic literature of the United States from 1860 to 1900 contained several acute analyses of important aspects of the cycle problem, but the total amount of literature which was aimed directly at the explanation of crises, depression, and business cycles was rather small. Much of the material was fragmentary and consisted for the most part of rather brief discussions of only some small part of the cycle problem. With few exceptions the material on cycle theory appeared as a by-product of the discussion of some other subject which frequently was but remotely related to cyclical changes in the direction and level of business activity. This partially accounts for the failure of many writers to define carefully many of the terms crucial to their analyses and to state the principal assumptions from which they started. Most works on economics, money, and banking treated the cycle problem briefly, if at all—a fact due in part, perhaps, to the organization of these works which made it difficult to treat problems of cyclical disequilibrium. Further, there was little attention given to the problem in the various articles in the academic journals.

The large volume of controversial writings on the greenback and silver issues over a period of forty years yielded little cycle theory of any value. Most of the silver and greenback writing which considered the problem of changes in the direction and level of business activity consisted of mediocre restatements of the monetary and cycle theory formulated before 1850. The abler economists were concerned primarily with the long-run rather than the short-run effects of the monetary changes from greenback and silver, while a large number of biased and incompetent writers were turning out a large volume of writings aimed more at influencing public opinion than at offering theoretical explana-

tions of the changes in business activity. Only two significant arguments relevant to business cycles appeared in the whole greenback and silver literature. The first was Francis A. Walker's argument that a declining price level decreases the length of the prosperity and increases the length of the depression phase of the cycle—a historical fact later established by an empirical study of business cycles in the United States and England.¹ The second was Taussig's point that the effect of a falling price level upon the level of business activity turned upon the relative rate of decline in the price level compared with the rate of increase in the productivity per unit of productive resource, that is, whether the price decline was due to technical cost-reducing improvements or to monetary factors.

In the period from 1860 to 1900 there were fourteen writers whose analyses of some aspects of the theory of business cycles deserve serious consideration. Several other writers considered some small aspect of the cycle problem. It is important, however, to note that most of the more significant business-cycle theory presented in the United States from 1860 to 1900 was stated after 1880, and even the greater portion of that after 1890. Seven of the fourteen major writers presented the first statement of their theory after 1890, and four others stated their theory in the decade from 1880 to 1890.² Most of the more important cycle theory was concentrated in the last decade of the period. With the elapse of time from 1860 toward 1900, an increasing number of writers in the United States were concerned with the cycle problem. It is impossible to say precisely what factors were responsible for this increasing interest in the theory of crises and depressions, but it was probably due to some combination of the following:

1. The more pronounced movement of business cycles following the Civil War disturbance and the increasing development of industrial capitalism in the United States

¹ Willard L. Thorp and Wesley C. Mitchell, *Business Annals* (New York: National Bureau of Economic Research, Inc., 1926), p. 66.

² In the decade from 1890 to 1900: Thorstein B. Veblen (1892); Arthur T. Hadley (1896); Irving Fisher (1896); J. Allen Smith (1896); Charles A. Conant (1897); John Bates Clark (1898); and Edward D. Jones (1900). In the decade from 1880 to 1890: George B. Dixwell (1881); Frederick B. Hawley (1882); Simon Newcomb (1886); and David A. Wells (1887).

2. The cumulative knowledge about various aspects of the cycle through the accumulation of recorded observation of cyclical behavior and the increasing availability of statistical data
3. The stimulus of the earlier theory and controversy about the cycle
4. The larger number of competent and independent American economists, many of whom had been trained abroad, as evidenced by the founding of economic associations and the several academic journals
5. A more tolerant attitude toward consideration of short-run business fluctuations on the part of economists

CONCEPTION OF THE CYCLE PROBLEM

If business-cycle theory is to be fruitful in explaining the cyclical fluctuations in business activity which actually occur in the economic system, the theorist must understand accurately at least the main features and crucial characteristics of the phenomenon his theory is formulated to explain. Contrary to the opinion of some, the evidence presented in the course of the analysis of the individual cycle theories shows that most of the abler writers during the period under survey understood the essential characteristics of the business cycle sufficiently well to formulate theory about it.³ The major writers were fully aware that revulsions, gluts, panics, crises, depressions, or business cycles, depending upon the terminology which they used, consisted of significant fluctuations in the total output of economic goods, total employment of economic resources, and total national income measured in monetary terms and that these cyclical fluctuations in economic activity involved most of the economic processes of the economy. Further, most writers were aware that the periods of prosperity and depression recurred with some recognizable degree of regularity, though only a few accepted exact periodicity; that the upward and downward swings were of considerable amplitude and duration; that in many cases the change from prosperity to depression involved a crisis in the sense of violent and rather explosive disturbance in financial and speculative markets; and, finally, that

³ For the contrary view see Wesley C. Mitchell, *Business Cycles: The Problem and Its Setting* (New York: National Bureau of Economic Research, Inc., 1928), pp. 10-11, 451; Alvin H. Hansen, *Cycles of Prosperity in the United States, Great Britain and Germany* (Madison, Wis., 1921), p. 7; Arthur B. Adams, *Analyses of Business Cycles* (New York: McGraw-Hill Book Co., 1936), p. 39.

the upward and downward movements of the cycle were cumulative in nature.

Certainly the abler writers did not think of crises and depressions simply as exceptions to full employment of resources (prosperity), considered the "normal" state of business. Instead, most of these writers recognized that business activity moved in cycles, that it alternated between prosperity and depression with a considerable degree of regularity. It should be no surprise that informed students during this period held such an opinion. In addition to their own observations, the records of the annals, and such statistical data as were available, there were the statements of a number of writers prior to 1860 which described business activity as moving in cycles. Miller has noted that Eleanor Lord and another American, probably Condé Raguét, had formulated a clear description of the cyclical process and had indicated the sequence of events or phases as early as 1829.⁴ Much earlier, Sir William Petty had described the phenomena leading from one panic to another as a "cycle." John Wade in 1833 designated "alternate periods of prosperity and depression" as the "commercial cycle" and suggested "five or seven years" as the typical length; and, in 1837, Lord Overstone had written his classic description of the cycle.⁵ J. B. Turner in 1844 and, in 1857, Amasa Walker and Francis Bowen definitely described business activity as moving in cycles. In 1860 Clement Juglar published his monumental work in which he established cycles in bank data in England and France.

In the period from 1860 to 1900, John Bascom in 1860 not only noted the cyclical movement of business activity but specifically argued that the rate of activity in the different phases of the cycle differed as did the length of the several phases.⁶ Arthur L. Perry wrote a similar description of the cycle.⁷ Examination of the works of Hawley, Walker, Conant, Jones, Smith, Fisher, and

⁴ H. E. Miller, *Banking Theories in the United States before 1860* (Cambridge: Harvard University Press, 1927), pp. 192-93.

⁵ Mitchell, *op. cit.*, pp. 10-11.

⁶ *Political Economy* (Andover, Mass.: W. F. Draper, 1860), p. 325.

⁷ *Elements of Political Economy* (9th ed. rev.; New York, 1873), pp. 367-68.

Dixwell shows clearly that they thought of cycles of prosperity and depression. It is a conservative conclusion that most of the abler writers from 1860 to 1900 were concerned with the alternate upward and downward movements of business activity—that is, business cycles—rather than, as frequently thought, with crises and depressions considered as temporary departures from prosperity. The previous error on this point is doubtless due in part to terminological difficulties arising out of the all-too-frequent and indiscriminate use by American writers during this period of the terms “panic,” “crises,” “depressions,” etc. Many of the better writers really used these common terms to mean the entire movement from crisis to crisis, or depression to depression, in precisely the sense in which the term “business” or “trade” cycle is used today, rather than to mean the panic, crisis, or depression phase of the cycle. The fact that even the abler writers devoted more attention to the crisis and depression phases than to the other phases of the cycle probably accounts for a further part of the errors. Further, the popular and less acute writers—those responsible for the greater volume of writing on the subject—were concerned almost exclusively with panics, crises, and depressions, which doubtless contributed to the erroneous impression.

There were, however, in the conception of the cycle problem held by many writers in the United States from 1860 to 1900 certain important aberrations and omissions. First, most of them thought of the cycle as being five to eleven years in length, with seven and eleven years most frequently suggested as the typical length of the cycle. Thus they generally overlooked the shorter Mitchell cycles and emphasized the Juglar cycles instead. This was, perhaps, due to (1) the lack of statistical data and the failure to use such data as were available, (2) the use of annual rather than monthly data, (3) the sharply rising trend in most of the available series which obscured the mild cycles because they were represented by relative rather than by absolute declines in the series, and (4) the tendency of most writers to mark the end of a cycle by major crises and depressions. Inasmuch as most cycle theorists in the United States from 1860 to 1900 did not accept strict periodicity but recognized that the cycles varied in length

from one cycle to another and generally attributed the cycles to the response mechanism and the operation of the economic system rather than to periodically recurring external forces, such as aberration as did occur concerning the historical length of the cycle was not serious enough to prevent the formulation of valid cycle theory. Second, while the cumulative downward movement was generally recognized and carefully analyzed by most writers, the cumulative upward movement was less frequently incorporated as an integral part of the problem to be explained by theory. Certain theorists, however, notably Wells, Bascom, Hadley, Jones, Conant, Smith, and Dixwell, definitely considered the cumulative upward movement one of the crucial characteristics of the cycle and offered various explanations of it. Third, and this was perhaps the major omission, most of the writers failed to think of the multiple interrelationships and processes of the economic system through the upward and downward movements of the cycle and thought instead of the cycle either in terms of over-all measures of economic activity, such as total income, output, and employment, or in terms of a very few processes. True, the interaction of several parts of the system were, of course, the primary causal forces in the theories of many writers, particularly, Newcomb, Fisher, Smith, Hawley, Veblen, Conant, and Walker; but even these writers, with a few exceptions such as Smith and Dixwell, confined their attention to a relatively few processes as compared with the multiplicity of complex processes which in the present state of knowledge about the problem are considered involved in cyclical movements. If the business cycle is largely the result of relative rates of change, that is, the response time of the various interrelated parts of the economic system, this omission was serious. Owing to the lack of sufficiently careful observation of the characteristic behavior of the interrelated parts of the economic system through the round of the cycle, most of these early theorists worked with an oversimplified conception of the complex cycle problem. This oversimplified and incomplete conception of the problem to be explained gave rise to cycle theory which was inadequate more because of the omission of important cycle-producing forces and mechanisms than for other reasons.

CHANGE IN TYPE AND COMPLEXITY OF EXPLANATION

In the later years of the period there was a pronounced shift from the simpler to the more complex formulas for explaining business cycles, which involved a greater number of interrelated and simultaneously changing processes. This shift is thrown in bold relief by a comparison of the works of Walker, Dixwell, Smith, Conant, and Jones near 1900 with the works of the writers in the early part of the period.

Along with this shift from 1860 to 1900, there was a gradual but recognizable corresponding shift, in frequency of statement at least, from attributing crisis and depressions to unpredictable outside forces to the idea that crises and depressions are merely phases of a cycle which have to be explained largely in terms of the response mechanism and the operation of the economic system. This change in thought was doubtless influenced by the accumulation of knowledge about the characteristic behavior of cycles and the closer examination of the pre-crisis and depression periods in quest of the factors responsible for the crisis and depression. This change in viewpoint was reflected in the formulation of theories which placed less emphasis on forces outside the economic system and made less attempt to discover ultimate causes of cycles and gave, instead, more attention to the response mechanism and the interrelationships of the various elements in the economic system.

In view of the attention given to the theories put forward by the individual writers in the preceding pages, a summary of the cycle theories seems unnecessary. Unfortunately, the author's knowledge of the more obscure literature outside the scope of this study is not of sufficient detail to enable him to indicate precisely the extent to which the ideas on cycles presented by the writers considered in this study were new and in advance of earlier ideas. Authoritative statements on this point obviously could be made only after intensive studies of business-cycle theory in other countries in the same or earlier periods comparable to that here presented for the United States. Such intensive studies might conceivably discover earlier and superior statements of many of the theories stated by the writers considered in this study. But it is

hoped that this essay, by presenting the different theories of business cycles stated in the United States from 1860 to 1900 and thus filling in one of the historical gaps in the knowledge of the development of cyclic theory, may enable future students to speak more definitely of what was known about business-cycle theory before 1900 without the necessity of examining hundreds of obscure and fragmentary references.

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